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AID, FOREIGN PRIVATE INVESTMENT, SAVINGS AND GROWTH IN LESS DEVELOPED COUNTRIES

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ABSTRACT

A half dozen papers in the last year or two have concluded that foreign resource inflows, and especially aid, have a negative effect on savings in many less developed countries. They therefore conclude that the effect of aid and other resource inflows on growth is often small or negligible. Most of these analyses suffer from statistical shortcomings, and, above all, from the assumption that correlation indicates something about causality. In many cases a negative correlation between savings and foreign inflows results because poorer countries, and those suffering from war, deterioration in the terms of trade or other exogenous shocks have low savings (and growth) rates and simultaneously receive more aid, draw more on reserves, and obtain more suppliers credits than the wealthier countries. Savings (and growth) and foreign inflows are often affected by the same exogenous factors, and their correlation therefore does not indicate a causal relationship.

If one assumes that savings are not affected directly by inflows, admittedly a strong assumption for all times and countries, one can examine the correlation of growth with savings and the components of foreign inflows: aid, private investment and other flows. Together these components of investment explain over a third of the growth rate. Foreign aid, which goes disproportionately to countries with low savings rates and serious balance of payments problems, has a more significant effect on growth than savings or the other forms of foreign resources inflows. The correlation between aid and the other forms

of inflows is not high, contradicting the notion that aid flows primarily to "dependent" countries exploited by private investors from the donor country. The coefficients for savings, aid, foreign private investment and other inflows are substantially higher and more significant for Asian and Mediterranean countries than for sub-Saharan Africa and Latin American countries supporting the notion that capital and foreign exchange are less serious constraints in the latter.

The cross-country analysis supports the traditional view that savings rise with per capita income. They are also significantly correlated with size of country, but this probably just reflects the relationship between savings and exports, i.e., exports of a given percentage of GDP are more favorable for growth in a larger than in a smaller (more trade dependent) economy. Exports, and expecially primary exports, are highly correlated with savings, most probably because such exports often produce highly concentrated incomes, which tend to be associated with high propensities to save and high government revenues. High levels of exports also release the foreign exchange constraint on investment and therefore on savings.

The quantitative evidence provided about factors affecting the rates of growth and savings is suggestive, but hardly conclusive. The results do suggest that the analyses which cast doubt on the effectiveness of foreign inflows, especially aid, in promoting growth are not strongly supported by the data. The earlier notion of the value of such inflows, and especially of aid, for growth may be closer to the truth.

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G. F. Papanek
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AID, FOREIGN PRIVATE INVESTMENT, SAVINGS AND GROWTH IN LESS DEVELOPED COUNTRIES*

I. The Case on the Negative Impact of Resource Inflows on Savings

The early literature discussing the impact of foreign resources on the economic growth of less developed countries was curiously naive, yet it has remained essentially unchallenged until quite recently. Its basic assumption was that each dollar of foreign resources, and particularly of aid, would result in an increase of one dollar in imports and investment. Given this assumption and a reasonably stable incremental capital-output ratio it was possible to calculate the effect of a dollar of aid, or of total foreign resources, on growth. Or to reverse the procedure, it was possible to calculate the aid required to achieve a target rate of growth.[1]

Some aspects of this simple Harrod/Domar-like model were subject to subsequent modifications (including several developed by Hollis Chenery), which greatly increased its sophistication and connection with reality. In

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*An earlier version of this paper was done jointly with Susan C. Jakubiak. Credit for much of the basic data and computation remains hers, but she is not responsible for the conclusions advanced here. Ellen Levine substantially expanded the country sample and the statistical work. I am very grateful also for the help and comments of a number of colleagues, most notably Lance Taylor, Millard Long, Walter P. Falcon, Anisur Rahman, Raymond Vernon, Shankar Acharya, and Thomas Weisskopf.

[1]The names most prominently associated with this approach are Rosenstein-Rodan (e.g.: "International Aid for Underdeveloped Countries," RES, May, 1961); Millikan and Rostow (e.g., A Proposal: Key to an Effective Foreign Policy, New York: Harper, 1957); and H. B. Chenery (e.g., "Foreign Assistance and Economic Development," AER, September, 1966, with A. Strout; "Development Alternatives in an Open Economy: The Case of Israel," Economic Journal, March, 1962, with M. Bruno; and "Foreign Aid and Economic Development: The Case of Greece," RES, February, 1966, with I. Adelman.)

later models, growth in many less developed countries was not determined by investment alone, but also by the capacity to import. Two gaps or constraints were therefore incorporated into the analysis: savings and foreign exchange. The incremental capital-output ratio did not remain a fixed figure, but was assumed to change with the rate and composition of investment. In some cases, other factors that could affect the capital-output ratio, most notably education, were incorporated into the analysis. Domestic saving was often included as an endogenous variable, changing with the rate of growth and sometimes with other factors. But assumptions about the contribution of foreign resources were not changed: they were exactly additive to domestic savings and to domestically financed imports.

Despite their persistence, these assumptions do not have any basis in traditional economic analysis. On the contrary, conventional wisdom would hold that any additional resources are used in part to increase consumption and only in part to augment investment. Analysis would normally focus on the respective proportions. However, until recently, such analysis did not take place with respect to foreign resource inflows.

The Recent Challenge of Past Assumptions

Within the last year or two there has been a drastic change: numerous essays have concluded that only a fraction of foreign resource inflows has been additive to domestic savings, while a large share went to increase consumption. Some of these essays are "revisionist" in the true sense of the term. They challenged the earlier notion that foreign

inflows, and especially aid, make a major contribution to economic growth. Instead they argued that foreign inflows tend to reduce and to substitute for domestic savings. Whatever fraction remains to increase investment is assigned by donors to projects with an unfavorably high capital-output ratio and therefore contributes little to growth. In addition, much aid is in the form of loans, often on unfavorable terms, and foreign private investors repatriate their excessive, monopoly-based profits. The future outflow of resources therefore needs to be taken into account in calculating the limited economic benefits of foreign resource inflows. Taking account of reduced savings, a poor rate of return, and compensating outflows means that foreign aid, the principal target of these critics, does little to increase growth. Aid may ease the lot of the recipient country's citizens by permitting higher consumption, which is considered desirable if the analyst's humanitarian instincts outweigh his Calvinist conviction that people should struggle for their economic salvation, but it does little for growth.[1] Finally, some critics have argued that aid and foreign private investment have undesirable social and political consequences, strenthening oppressive governments and institutions--consequences which need to be weighed against its short-term palliative effect in permitting greater consumption. In short, some recent articles[2] have reached almost the opposite extreme from the earlier analysis: while it was postulated earlier that every dollar of inflows will produce at least an equivalent increase in investment, these revisionists see almost no increase in investment, and no increase in

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[1]Anisur Rahman (in "The Welfare Economics of Foreign Aid," Pakistan Development Review, Summer, 1967) suggests, however, that it may actually be considered desirable, in the interests of intertemporal equity, to use foreign resources to increase consumption rather than investment.

[2]Most notably Griffin and Enos; cf. footnote, page 4.

growth from foreign resources. Most analysts did not go so far. They agree, however, that aid and other foreign inflows reduce domestic savings and are used in part to increase consumption. For ease of exposition, the whole recent literature will be grouped under the heading "the critics".[1]

Clearly "the critics" made a very useful and significant contribution in challenging the naive view of the benefit of foreign inflows. If they had been content to argue that some part of foreign inflows under some circumstances is likely to be used for increased consumption, rather than wholly for increased investment, their contribution would have caused little stir or disagreement. It is, after all, more plausible that some share of foreign inflows increases consumption, especially those which take the form of surplus agricultural commodities or are financed by the use of foreign exchange reserves, than that there is a one-for-one relationship between inflows and increased investment.

But much of the critical literature has gone beyond modest claims and suggests that foreign inflows cause a reduction in domestic savings,

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[1] It includes: (a) K. B. Griffin and J. L. Enos, "Foreign Assistance: Objectives and Consequences," Economic Development and Cultural Change; (b) Anisur Rahman, "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data," RES, February, 1968; (c) Kaj Areskoug, External Borrowing: Its Role in Economic Development (Praeger, 1969); (d) Thomas Weisskopf, "The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries," Journal of International Economics (forthcoming); (e) H. B. Chenery, "Development Alternatives for Latin America," (with P. Eckstein), JPE, July/August, 1970, "A Uniform Analysis of Development Patters," (with H. Elkington and C. Sims), Economic Development Reports, Nos. 148 and 158, Center for International Affairs, Harvard University, and "Targets for Development," Economic Development Report, 153.

and that the magnitude of the reduction is measurable.[1] These results are summarized in Table 1.

TABLE 1

The Effect of Resource Inflows on Savings or Investment

	No. of Countries	Times Series or Cross-Country	Savings or Investment	Effect of Foreign Inflows
Griffin & Enos	32	C	S	- .73
Rahman	31	C	S	- .25
Areskoug	22	T	I	+ .40
Weisskopf	38	T	S	- .23*
Chenery (JPE)	16	T	S	+ .64 to -1.15**
Chenery (EDR 148)	90	C	S	- .49
Chenery (EDR 148)	90	C	I	+ .11

*According to Weisskopf this is a minimum estimate and the reduction in savings is probably greater.

**12 out of 16 countries show a negative relationship.

[1] Weisskopf: "The numerical results ... support the hypothesis that the impact of foreign capital inflow on ex ante domestic savings ... is significantly negative." Chenery: (JPE) "In twelve out of sixteen cases, the impact of additional foreign capital on saving was found to be negative." (EDR, No. 148) "... the effect of a change in the inflow of capital ... is a: Fall in savings .49". Griffin and Enos: "... foreign assistance has neither accelerated growth nor helped to foster democratic political regimes. If anything, aid may have retarded development by leading to lower domestic savings, by distorting the composition of investment and thereby raising the capital-output ratio, by frustrating the emergence of an indigenous entrepreneurial class, and by inhibiting institutional reforms."

Implicit Savings Functions

Most critics suggest that there is a negative causal relationship between foreign inflows and domestic savings but are not specific about the savings function which underlies their assumed relationship. Nor do they specifically compare their implicit function with the functions derived from the rather limited work on savings in less developed countries.

There are at least three plausible savings functions which alone or in combination would result in a small or zero increase in investment as a result of foreign inflows; that is, a situation where foreign inflows largely or wholly substitute for domestic savings:

(i) Rahman and Weisskopf imply that savings are substantially determined by government policy and that a government's saving effort will be less vigorous if greater foreign resources are available. Specifically, if one assumes that savings are a function of government effort or policies, that governments have a fixed growth rate as their objective, that achievement of this growth rate requires a given investment, then, if any resources for investment come from abroad, a government will change its policies and programs to reduce domestic savings by an equivalent amount.

(ii) If savings are in part a function of investment opportunities, as suggested by Houthakker,[1] and some opportunities are pre-empted by foreign capital, then again every unit of capital inflows will be offset in part by a compensating decline of domestic savings.

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[1] H. S. Houthakker, "On Some Determinants of Savings in Developed and Underdeveloped Countries," in E. A. G. Robinson (ed.) Problems in Economic Development, London, 1965.

(iii) If savings are in large part a function of the level and rate of change of per capita income, as also argued by Houthakker, then the contribution of foreign inflows to investment will depend on the marginal propensity to save out of additional income. Since capital inflows have averaged only 3.4 percent of GDP, and marginal propensities to save in less developed countries seem to be quite low (20 percent or less) the contribution of capital inflows would then generally be quite small with respect to investment and negligible with respect to growth. Given this limited impact on growth, capital inflows would not significantly affect domestic savings rates in subsequent periods in most countries.[1]

However, another set of plausible savings functions would produce a substantial increase in investment as a result of foreign inflows:

(iv) If savings are substantially a function of the foreign exchange available to import capital goods and inputs to keep installed capacity functioning; then savings would increase with foreign inflows. The importance of the foreign exchange constraint is confirmed by some of Chenery's recent work. Foreign inflows are shown to contribute to growth in addition to their contribution to investment. Similarly, in Weisskopf's analysis, investment in eight out of thirty-one countries was foreign exchange constrained, and another six countries had both a

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[1] E.g.: even in a country receiving capital inflows at the high rate of 6 percent of GDP, with a marginal propensity to save of 20 percent, investment would increase by only 1.2 percent of GDP. With an incremental capital-output ratio of 3, growth would be raised by 0.4 percent of GDP, and subsequent domestic savings by less than 0.1 percent of GDP.

savings and foreign exchange constraint.[1]

(v) If savings are a function of the level and rate of growth of the income of particular groups, such as industrialists, exporters or others with large incomes, capital inflows may rapidly raise savings by increasing the income of these groups, even if average income changes little. Houthakker provides some evidence that savings in fact are a function of the income of particular groups.

(vi) If savings are a function of income but there is no effective mechanism for achieving a reduction in savings to compensate for any increase in investment directly financed by foreign capital, the net effect of foreign inflows on investment will depend on the proportion of inflows initially allocated to investment. When foreign resources first flow into a country, a large share is directly invested--almost of aid, a small share of other inflows and almost all foreign private investment. In addition, aid donors exert pressure for increases in domestically financed investment, at least to cover the local currency costs of their projects. In the first round, therefore, the rise in investment may equal foreign inflows. The question then is whether in a second round the government can and will make compensatory adjustments in domestic savings and consumption in order to meet its specified objective function.

In short, there are plausible savings functions which could result in one dollar of foreign inflows producing anything from no increase in

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[1]Robin Morris ("Can we Measure the Need for Development Assistance," Economic Journal, September, 1970) concludes that an equal number of countries had a dominant savings and foreign exchange constraint.

investment to more than one dollar of additional investment. But all of the critical analyses agree that the average impact has been to increase investment by only $0.11 to $0.77 for every dollar of inflow. While other results might be plausible, are there any reasons to question these quantitative results? In fact, their usefulness and reliability can be doubted because the measures of savings reflect an accounting convention rather than a behavioral relationship, because of statistical problems and, most important, because in many cases the measures involve only correlation not demonstrated causality.

Accounting Conventions vs. Behavioral Effects

The negative statistical relationship between savings and foreign inflows found in recent analyses can be in part (or even wholly) the result of an accounting convention, not of a behavioral relationship. Savings are conventionally calculated by subtracting total foreign inflows from investment. Then, if part of foreign inflows is used to increase consumption, domestic savings can appear to have declined even if in reality a greater savings effort has been made.

A simple example will make this clear. Assume foreign inflows are 10 units, of which 7 units are used to increase investment and 3 units increase consumption; assume also that domestic savings simultaneously are increased from 10 units to 12; then total investment will be 19 and conventionally calculated domestic savings will be 9 units (19 of investment minus 10 of inflows.) In this case the accounting convention will produce a result--a decline in savings--that is the opposite of what actually happened--a rise in domestic savings.

Conceptually the problem can be avoided by examining the inflows in terms of their contribution to investment. In the example above, the effect of 10 units of foreign resources would be stated in terms of a 7-unit increase in investment and a 3-unit increase in consumption, rather than the conventional formulation of a one-unit decline in savings. However, the alternative approach is generally not feasible, because data are inadequate to measure the actual use of foreign resources.[1]

Inappropriate Aggregation, Conflicting Results and Other Statistical Problems

The critics analyses suffer from some serious statistical problems. First, they aggregate all foreign inflows and deal with the net total flows only. Yet one would not expect aid to have the same impact on growth and savings as foreign private investment. Both are likely to differ in effect from changes in reserves, capital flight, short-term speculative movements or commercial borrowing. To draw any conclusions about the effect of one component, such as aid, one needs to analyze it separately from other flows.

Second, some of the data used inevitably have an unusual margin of error, which may introduce systematic bias.[2] Non-monetary investment is probably widely underestimated and is normally especially

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[1] Anisur Rahman has, quite correctly, pointed out that the normal approach is consistent with conventional economic definitions of savings and is justified in terms of economic analysis. However, it incorrectly describes the behavior of the economy.

[2] For the U.S., Paul Taubman found that different savings series gave quite different marginal propensities to save out of normal income, ranging from .07 to .20 for the same model. ("Personal Savings: A Time Series of Three Measures of the Same Conceptual Series," RES, February, 1968.)

important in the least developed countries. The same countries also tend to underestimate monetary investment, since their calculations are often based on capital goods imports and production, with inadequate allowance for domestic value added. On the other hand, some of the more developed of the less developed countries tend to overestimate investment, since their capital goods are more highly protected than other commodities and investment is, of course, estimated in local prices. Argentina is an example. Savings estimates, when calculated as a residual by subtracting inflows from investment are subject to greater error than investment estimates. Then if the least developed countries, that is the poorest ones, receive more aid, there would tend to be a specious correlation in cross country analysis between aid and low savings rates.

Third, most of the analyses compound possible error by incorrect calculation of foreign resource inflows. With the exception of some of Chenery's work, all ignore net factor payments to abroad. With a mean of 2 percent of GDP, net factor payments almost equal foreign inflows as usually measured. They range from minus 8 percent of GDP for Jordan, 4 percent for Morocco and 2 percent for Greece to plus 15 percent for Iraq, 10 percent for Venezuela, Trinidad-Tobago and Zambia, and 7 percent for Iran.[1] To ignore flows of such magnitude, related to export earnings in most cases, creates the possibility of serious random error and bias. Weisskopf also ignores service payments,

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[1] All figures rounded decade averages. Source: I.B.R.D. "World Tables". A Statistical Appendix is available from the author, giving basic data by country, sources and definitions.

and deals only with commodity flows, reducing his average estimate of foreign resource inflows. Most analyses, except Weisskopf's, include a few countries that have a net outflow of resources. In effect, they suggest that since countries with capital exports have high savings and growth rates, capital imports cause low savings and growth rates.

Finally, it is clear that different analysts obtain strikingly different results, which casts some doubt on their reliability. The variation between 11 percent and 77 percent in average impact of foreign inflows on investment and the general dispersion noted in Table 1 are not negligible. However, they might be explained in part by differences in sample, time period and method of analysis (different variables; time series in some cases, cross-country in others.) However comparing time series results for the same countries still produced widely different results (Table 2). Of course, the specifications of the models still differ among analysts, and the time periods are not quite identical, but the very large variations should give one pause, especially since the differences are not systematic as one might expect if they were due simply to differences in specification.

TABLE 2

THE EFFECT OF CAPITAL INFLOWS ON SAVINGS AS ESTIMATED IN THREE TIME SERIES ANALYSES

	Weisskopf (generally 1953-66)	Chenery (JPE) (generally 1950-64)	Areskoug[1] (generally 1950-64)
Colombia	- .07	- .36	-1.53
Costa Rica	- .58	- .26	
Honduras	- .88	- .25	
Mexico	- .06	- .76	- .58
Chile		- .42	+ .01
Brazil		+.07	-1.02
Guatemala		+ .02	+4.30
Panama		-1.15	- .57
Paraguay		+ .04	+1.54

[1]Actually Areskoug calculates the effect of foreign borrowing on investment, not savings. His relationship has been transformed into savings by simple arithmetic, using the identity S = I - Inflows.

Correlation vs. Causality

The recent evidence about a negative causal relationship between foreign inflows and savings suffers not only from a variety of statistical problems and the conventional definition of savings, but also from uncertainty about the direction of causality. There are clearly many cases where high foreign inflows are associated, among countries or over time, with low savings and, in some cases, low growth rates. However, quite frequently a look at the specific circumstances will lead to doubts that low savings and growth are caused by high inflows. Rather, both are more likely to have been caused by a poor or deteriorating economic and/or political situation.

Poor countries, and countries passing through a crisis often have low savings rates and (ceteris paribus) low growth rates. If, at the same time, poor countries or those passing through a crisis frequently receive greater inflows because of greater need, then savings and growth will be negatively associated with inflows for many countries without any causal relationship between them. Aid is a major part of foreign inflows which goes primarily to the needy--poor or crisis-ridden countries. This is not the same as arguing that aid is allocated to all needy countries and in proportion to need. Clearly, most aid is allocated in large part on the basis of political considerations--it goes to client states of donors, to their political allies, to those who occupy a crucial political, military or economic position and so on. It is also allocated on the basis of humanitarian considerations. But among countries who have a claim for political (or humanitarian) reasons it tends to go to

those who need foreign resources more, and during periods of greatest need. For instance, Mexico is undoubtedly more important politically to the U.S. than is Pakistan, and Poland is more crucial to the USSR than is Cuba. Yet Pakistan and Cuba are major aid recipients because they need foreign resources if their economies are to function and their governments to survive, while neither Mexico nor Poland are as dependent on aid. Both of the former countries also received more aid in periods of bad harvests than when the weather has been good. At least one study supports the contention that the amount of aid is clearly related to need.[1]

Some foreign inflows other than aid also increase in times of crisis and for countries of greater need. When foreign exchange is scarce, for instance, businessmen are likely to look more assiduously for foreign private investment and foreign commercial loans, and governments are likely to draw more on suppliers credit, commercial loans and their foreign exchange reserves.

There are several categories of exogenous factors which simultaneously make for higher foreign resource flows, and lower savings and growth rates, or vice versa:

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[1] A. Strout and P. Clark in an extensive study of aid (Aid, Performance, Self-Help and Need, AID Discussion Paper No. 20, Agency for International Development, July, 1969) found a significant correlation of aid with per capita income (negative) and a calculated foreign exchange gap.

(i) War, civil war or major political disturbances. Most recent analyses include South Korea, Taiwan, Philippines and Israel. All of these countries had high inflows of aid and relatively low savings rates in the early 1950's (see Table 3), when they were recovering from war or civil war (plus absorption of immigrants in the Israeli case). Some also had lower growth rates until recovery was well under way. By the 1960's savings were up and inflows were lower. It is at least as plausible to conclude that higher savings and lower inflows were both the result of recovery as to believe the alternative hypothesis that lower inflows caused higher savings. As a matter of fact, aid advocates have cited the same data as the revisionists for their contention that aid has been highly successful. In the case of Israel, South Korea and Taiwan, the aid advocates argue, substantial aid in the 1950's resulted in a high growth rate, which produced higher savings subsequently and thus reduced the need for aid. The Dominican Republic, also included in many analyses, had quite respectable savings and growth rates in the 1950's. After its civil war and U.S. intervention, both plummeted and aid increased. Nigeria's savings rates were low in the 1960's during its civil war, when aid and foreign private investment in newly discovered oil were both high. Again, it is more plausible that lower savings rates and increased aid were the consequences of civil war, than that additional aid caused lower savings. For all of these countries, a negative correlation between savings (and sometimes growth) and foreign inflows (especially aid) will show up in both cross-section and time series analyses.

TABLE 3

SAVINGS, GROWTH AND FOREIGN INFLOWS IN COUNTRIES SUBJECT TO EXOGENOUS SHOCKS

	Growth		Savings			Inflows			Of which aid	
	50's	60's	50's	60's	64/65	50's	60's	64/65	50's	60's
Korea[1]	5.7	6.3	-2.0	5.1	9.6	12.4	9.5	4.5		
Taiwan[2]	7.0	9.4	6.3	12.0	15.6	5.0	2.5	- .2		
Israel[3]	9.1	7.5	9.4	13.9		20.3	15.3		10.3	5.8
Philippines[3]	6.6	4.4	5.3	13.8		6.5	5.5		4.3	3.2
Dom. Rep.[3]	5.5	2.9	16.1	10.8		- 0.1	2.9		1.5	3.1

Sources and notes:

1. 1953-58 and 1959-65 are the periods used. From: U.N. Yearbook of National Accounts Statistics, 1966.
2. 1953-58 and 1959-65 were used. From: U.N. Yearbook of National Accounts Statistics, 1966.
3. For Growth, 1950-1960 and 1960-1968 were used. For Savings, 1951-1960 and 1961-1965 were used. Inflows used the averages of 1955 and 1960 for the '50s and 1960 and 1965 for the '60s. See Statistical Appendix for sources.

(ii) Terms of trade. A very substantial change in the terms of trade, especially for countries heavily dependent on exports, generally has a substantial impact on savings rates. Export earnings from minerals or plantation crops often produce more concentrated earnings than production for the domestic market and savings are therefore derived disproportionately from the export sector.

Colombia, for instance, experienced a drop of 47 percent in the price of its coffee between 1954 and 1963. Coffee provided 70-80 percent of export earnings, so it is not surprising that savings and growth were affected. During the period of high coffee prices in the early 1950's Colombia substantially increased its foreign exchange reserves (its domestic savings exceeded investment) and growth exceeded 5 percent per annum. Following the coffee price crisis, foreign inflows reached 2 percent of GDP but the growth rate fell to 3 percent, while domestic savings declined somewhat.[1]

Ghana, as dependent on cocoa as Colombia is on coffee, experienced a drop in its terms of trade index from 112 to 57 between 1959 and 1965. As a result, savings fell from the rather high rate of 16.5 percent of GNP which had been reached in 1960. In an attempt to maintain imports and investment, foreign exchange reserves were drawn down and resort to suppliers credits was expanded, both steps increasing foreign inflows.

Over time, foreign inflows were negatively correlated with both growth and savings for these two countries. In cross-country analysis,

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[1]Papanek, Schydlowsky and Stern, Decision-Making for Economic Development, Houghton Mifflin, 1971

Ghana in the 1960's was an example of a country with relatively low savings and high inflows. This was partly the result of the deterioration in the terms of trade.

(iii) Weather and other exogenous variables. Several years of good or of unfavorable weather sometimes occur in sequence, especially in monsoon agriculture. In countries where agriculture directly provides around 50 percent of GDP and of exports, and affects the income generated in agriculture-based industry, trade and government revenues, two years of bad harvests can substantially reduce savings and growth rates for three or four years. During the same years, foreign exchange reserves are likely to be drawn down, while foreign borrowing and foreign aid are likely to be increased. Since the U.S. has made surplus agricultural commodities available under P.L. 480, high aid inflows and poor harvests have been especially closely related.

For instance, in India the good harvest of 1964 (production index of 119) produced high savings (6 billion rupees), high growth (7.8 percent) and high export rates ($1.7 billion) accompanied by low inflows of surplus agricultural commodities (U.S.$268 million). The poor harvests of 1965 and 1966 (average index 108) resulted in a reversal: reduced savings (average 5 billion rupees), reduced growth (-2.06) and lowered exports ($1.6 billion), accompanied by increased aid in the form of wheat, rice and so on (average $480 million). Forty percent of the borrowing examined by Areskoug was for the import of U.S. surplus agricultural commodities. The vagaries of weather obviously have a substantial influence on this important category of foreign inflows.

There are other exogenous shocks to an economy which reduce economic performance and sometimes increase inflows. With the phasing out of its Malta naval base, Britain substituted a subsidy ("aid") for payments ("exports") which had made higher savings possible. With the nationalization of foreign enterprises and some other steps, savings dropped sharply in several countries, but increased aid from the Soviet Union became available. Earthquakes in Morocco, floods in Tunisia and similar catastrophes meant lower savings and higher aid were correlated over time, but not directly causally related. The opposite case is the discovery of oil or other natural resources, with development paid for by revenues from their export, not by the same foreign resources coming as investment. Savings, growth and exports all rise, while foreign aid drops, foreign investment can remain negligible and "other" foreign inflows can turn negative, as Swiss bank accounts are fattened. Again a negative correlation between savings and inflows would be shown, without direct causality.

The above three sets of factors generally make for a negative correlation of foreign inflows with savings and often growth, in time series and in most cross-country analyses. The length and severity of the swings accounts for the fact that cross-country analyses are also affected, although the correlation is temporal. Cross-country analysis is usually based on five-to-ten year averages. Swings in the terms of trade, weather, wars and civil wars can substantially affect savings rates, growth, aid and other inflows for two to five years. As a result,

even eight-year averages used in cross-country analysis are likely to be influenced by these events (and the use of three-year moving averages in time series analysis, by Weisskopf for instance, does not eliminate their effect). Cross-country analysis is affected not only by these exogenous temporal factors, but also by long-term differences in societies.

(iv) Low or high savings societies. Some countries are low savers and, ceteris paribus, have low growth rates, while others are high savers and have high growth rates for a number of social, economic and historical reasons. Religious, ideological or cultural factors can result in thrifty or extravagant societies. A history of inflation and political upheavals may discourage savings, while a history of secure and profitable property ownership may encourage it. Concentrated rental income, for instance from mineral wealth, combined with futher opportunities to invest in mineral development may produce high savings rates while stagnant economies, with a large subsistence sector and no concentrated income, may generate little savings. If the low savers receive more aid because of greater need, low savings and high inflows would again be correlated in cross-country analysis. If then the inflows are inadequate to compensate for low domestic savings in providing the resources for growth, high inflows will also be associated with low growth rates.

On the one hand, for example, there are the metal, oil and other natural resource rich countries, such as Iraq, Venezuela, Zambia and Peru, which have high savings rates, generally high growth rates and low foreign resource inflows. In most of these countries aid is low. (See Table 4) Foreign private investment usually was considerable before the mid-1950's

TABLE 4

GROWTH, SAVINGS AND FOREIGN INFLOWS IN LDCS
WITH HIGH AND LOW SAVINGS
(Averages for 1950's and 1960's combined;
all figures as percent of GDP).

High Savers (Mostly rich in exportable natural resources)

	Growth	Savings	Total Inflows	Composition of Inflows: Aid	Investment	Other
Burma	4.1	18.5	-0.3	1.2	-0.2	-1.3
Colombia	4.6	17.4	1.1	0.5	0.4	0.2
Iran	6.3	15.0	1.5	0.9	0.8	-0.2
Iraq	5.3	23.0	-0.2	1.2	-1.8	0.8
Ivory Coast*	8.1	18.5	0.0	3.3	2.2	-5.5
Japan	10.0	32.2	-0.1	-0.1	0.1	-0.1
Malaysia*	5.0	20.4	-1.0	0.7	1.3	-3.0
Peru	5.0	19.6	2.7	0.6	2.0	0.1
Zambia*	9.4	36.0	0.1	-0.1	0.1	0.1
Average	6.4	22.3	0.4	0.9	0.5	1.0

Low Savers (Mostly poor)

Ethiopia*	4.1	10.0	2.2	3.5	0.0	-1.3
India	3.7	11.1	1.3	1.3	-0.1	0.1
Jordan*	9.3	-2.5	19.3	18.6	1.0	-0.3
Average	5.7	6.2	7.6	7.8	0.3	-0.5

*Data for 1960's only.

Source: See Appendix. Where data for both 1950's and 1960's were available a single weighted average was calculated.

and quite low thereafter so most analyses which begin about 1953 would not show high inflows from this source. In some cases, capital flight,[1] or repayment on foreign investment and borrowing, produces an outflow in the "other" category, so that even if substantial foreign private investment took place, the analyses using only net foreign flow figures will show low inflows, as "other" outflows offset foreign private investment. Another high savings/low inflows society is Japan, where high savings rates were not due to natural resource wealth, but historically high savings propensities. On the other hand, there are countries with low per capita incomes and a poor endowment in readily exportable natural resources, who tend to be low savers and some of whom are substantial recipients of foreign aid.

The argument is not that all natural resource rich countries or those with high per capita incomes are high savers and vice versa. Nor is it that aid is allocated on the basis of need. It is simply that all cross-country analyses include a substantial number of countries that have a very high propensity to save for a variety of reasons mentioned earlier. These countries generally receive foreign inflows that are low. There are also a few countries in all samples which have a low propensity to save and which receive substantial aid. It is almost self-evident that the resulting correlation between high inflows and low savings does not demonstrate that high inflows cause low savings.

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[1] As pointed out by Raymond Vernon, capital flight by citizens of a country, like other transactions of theirs, represents "foreign resources" only in a definitional sense. Usually subtracted from foreign private investment, capital flight by citizens can lead to an understatement of actual foreign private investment, calculated on a net basis.

Conclusions Concerning the Negative Impact of Inflows on Savings

An examination of the methodology of those who argue for a negative causal relationship between foreign inflows and savings, and of individual countries on which their cases are based supports the conclusion that their quantitative analyses do not support their hypotheses. An examination of individual countries in their sample suggests that in many instances causality is more complex than they assume. In both time series and cross-country analysis there are examples where it is plausible to conclude that exogenous factors caused both high inflows and low savings rates and generally low growth rates as well. Even the rather superficial examination discussed earlier provided a substantial number of examples. If one takes account of the six countries where wars or similar disturbances affected the economy, the two countries where terms of trade changed sharply and the two or more countries where weather and other exogenous shocks played a role, very little is left of the critics evidence based on time series analyses. For cross-country analyses another dozen countries need to be added, most of them with historically high savings propensities and with low inflows, without any necessary causal relationship between them.

But while a negative causal relationship between inflows and savings is not supported by the quantitative evidence it almost certainly exists in some cases. It would be surprising if there were not some countries where the government reduced its tax effort, or neglected incentives for agriculture, secure in the knowledge that aid would fill the fiscal or food gaps. There must be some countries where foreign investment foreclosed opportunities for domestic investors and therefore discouraged savings. As a result of these or other circumstances, there

are undoubtedly cases where the availability of foreign resources resulted in savings lower than they would have been in the absence of such resources.

A careful study of Korea, for instance, concludes that in the mid-1950's the government followed policies "for maximizing the inflow of foreign aid," by "an overevalued exchange rate, relatively low tariffs on imports, no efforts to encourage exports, a deficit budget....and low interest rates."[1] The after-effects of the war plus conscious policy seem to have combined to produce low savings and high aid flows. Other analysts have suggested that India and Pakistan neglected agricultural development, and therefore the savings a rapidly growing agriculture could have provided, because they knew that shortfalls would be made good by U.S. surplus commodities; that opportunities for Cuban, Mexican and Central American investors were preempted by U.S. capital, and that negative savings rates in Liberia and extravagant expenditures leading to lower savings in Ghana were due to the ready availability of suppliers credits.

But only careful analysis of individual countries can really shed any light on the impact of foreign inflows on savings, exports, or growth, and even such analyses are invariably subject to disagreement and dispute. For instance, what if Korea had received less aid? Would it have devalued, raised tariffs, encouraged exports, raised taxes and interest rates, or would it simply have imposed stricter quantitative restrictions on imports, nationalized the export industry, further repressed agricultural income and nationalized the banks, and what consequence would either set of policies have had on savings just after the

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[1] D. E. Cole and P. Lyman, Korean Development--The Interplay of Politics and Economics, Cambridge: Harvard University Press, 1970, p. 170.

civil war? In the Pakistan case, the argument that surplus commodities weakened the agricultural development effort has been countered by the contention that their availability made possible a policy of price stabilization and the termination of the allocation system, both crucial to increased agricultural output.

There are no good answers to the question "what would have happened with less or more foreign resource inflows." Under some circumstances, foreign inflows undoubtedly stimulated savings, so that each dollar of inflows led to more than a dollar of investment, while in other cases they discouraged savings and a dollar of inflows may have led to much less than a dollar of investment. However, as long as both savings and inflows are in many cases substantially affected by third factors, the negative correlation between the two found in many studies sheds little or no light on their causal relationship.

II. Some Modest Evidence on Savings and Foreign Resources as Factors in Growth

It may be possible to provide some quantitative evidence on the relationships between savings, foreign resource inflows and growth by using cross-country analysis, despite its great weaknesses. The approach used here differs from that taken in most recent studies by:

(a) dropping the assumption that the impact of inflows and savings can be measured by regressing one on the other, substituting the assumption that they are independent variables in explaining growth,

(b) disaggregating inflows into their principal components,

(c) testing some hypotheses concerning factors influencing savings rates,

(d) reducing, to the extent possible, statistical weaknesses and increasing the size of the sample. An attempt along these lines is made in the rest of this paper.

Information on sources of data and methods of calculation is given in a Statistical Appendix.[1] Although much of the material that follows is based on 85 observations, 34 for the 1950's and 51 for the 1960's, it still suffers from all the defects of cross-country analysis. It is therefore only suggestive and far from definitive. Given this caveat, the results appear quite interesting.

Making all the usual assumptions underlying cross-country analysis, the first step is to examine the effect the components of investment on growth. It is conventional economic wisdom that investment is one of the major determinants of growth,[2] and by separating the contribution of the components of investment--domestic savings and various forms of foreign resource inflows--one can obtain some indication of their effect. Admittedly this is a very partial analysis. Any reasonably complete model would need additional variables to explain growth. However the primary focus here is on the impact of foreign resources on growth and on the relationship between foreign resources and savings, so that a very partial analysis may be justified.

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[1] Available from the author.

[2] A recent article by Sommers and Suits actually has investment as essentially the only variable explaining growth. ("A Cross-Section Model of Economic Growth," RES, May, 1971).

		Savings	Aid	Foreign Private Investment	Other Foreign Inflows
(1) Growth =	1.5	+ 0.20	+0.39	+ 0.17	+ 0.19
(t-ratios)	(2.5)	(6.0)	(5.8)	(2.5)	(2.1)

Corrected R^2 = 0.37 F statistic = 13.5

Note: Here and subsequently, all variables are given as percentages of GDP, unless otherwise specified.

The results are not unexpected. Aid has a coefficient nearly twice that of the other independent variables, which is reasonable. Aid, unlike domestic savings, can fill the foreign exchange gap as well as the savings gap. Unlike foreign private investment and other foreign inflows, aid is supposed to be specifically designed to foster growth and, more important, is biased towards countries with a balance of payments constraint. The high coefficient for aid is consistent with other work which shows that foreign inflows are correlated with growth even after their effect in increasing investment is taken into account.[1] Since other studies amalgamate all foreign flows into a single figure, treating them in effect as homogeneous, any special impact of aid is, of course, not evident, but shows up only in the general impact of foreign inflows.[2]

The R^2 of regression (1) is not unexpected. The conclusion that savings and foreign inflows "explain" about one-third of growth, with the remainder attributable to natural and human resource endowment, the

[1] E.g., Chenery, op. cit., and Sherman Robinson, "Aggregate Production Functions and Growth Models in Economic Development," unpublished Ph.D. thesis, Harvard University, June 1969.

[2] Conceptually, causality could run the other way with more rapidly growing countries receiving more aid because of better performance. A very simple test provides no support for this hypothesis. For 34 countries aid for 1960-65 was not significantly correlated with growth in the 1950's. (Corrected R^2 = 0.04, t-ratio = 0.9, F = 0.8).

capital stock and the management of the economy is quite consistent with the history and analyses of development.

As might be expected from the earlier discussion, aid and domestic savings are negatively correlated. (See Table 5). The correlation of foreign private investment and other foreign inflows with savings is not significant, casting some doubt on the notion that domestic savings respond negatively to the size of total foreign inflows. Unless it is argued that the savings effort of less developed countries is reduced only when foreign resources come in the form of aid, not in other forms, the correlation matrix in Table 5 lends no support to the case that savings respond inversely to foreign resource inflows.

TABLE 5

CORRELATION AMONG SAVINGS AND FOREIGN RESOURCE INFLOWS

	Aid*	Investment*	Other*
(Domestic) Savings	-0.56	-0.22	-0.19
(Foreign) Aid		0.13	0.14
(Foreign private) Investment			0.23

*Here and subsequently these variables refer to different forms of foreign inflows.

Table 5 also contradicts the proposition that aid flows are substantially correlated with other foreign resource flows. This is another reason why analyses which combine all foreign resource flows and then draw conclusions for aid can easily be wrong. More important, the data contradict the contention that aid is biased in favor

of the countries which are hospitable to (and often exploited by) the private investors of aid donor countries, a favorite argument of some aid critics.

Given the reasonably strong negative correlation between savings and foreign aid, various statistical tests of the relationship between growth and either savings or aid do not give very satisfactory results. If both savings and aid contribute to investment and therefore to growth, the measured impact on growth of either savings or aid alone would be quite small, since the low savers are high aid receivers and vice versa. Quite naturally a simple correlation between aid and growth will support the spurious contention that aid does not contribute to growth.

		Savings	Aid	
(2)	Growth = 4.4	+ 0.07		$\bar{R}^2$ = 0.02 F = 3.9
	(t-ratios) (8.7)	(1.7)		
(3)	Growth = 4.9		+ 0.20	$\bar{R}^2$ = 0.08 F = 9.6
	(t-ratios) (20.0)		(3.1)	
(4)	Growth = 2.0	+ 0.18	+ 0.39	$\bar{R}^2$ = 0.28 F = 17.9
	(t-ratios) (3.3)	(5.0)	(5.5)	

Regional Differences

There seem to be substantial differences among regions in the less developed world with respect to the impact on growth of savings, aid, and the other foreign inflows. Since the number of observations for each region, and especially for sub-Saharan Africa, is quite limited, one needs

to treat regional results with additional caution. However, it appears that savings and foreign inflows, and especially aid, have the most unequivocal impact on growth in Asia and the Mediterrean countries. A corrected R^2 of 0.46 for Asia implies that investment explains nearly half of the growth in that area. Coefficients are distinctly lower in Latin America[1] and their significance is also much less. The sample for sub-Saharan Africa is too small for really useful results, but there is no significant correlation of savings and foreign inflows with growth in that area. These results are consistent with other discussions,[2] which stress that capital and especially foreign exchange are crucial constraints on growth in a number of Asian countries, while political, social and human factors are more important for some countries in Latin America and Africa. The Mediterranean countries resemble Asia.[3]

Growth Rates		Savings	Aid	Investment	Other	Corr. R^2	F	Sample Size
(2) Asia	= 1.5	+ 0.21	+ 0.46	+ 0.35	+ 0.13	0.46	7.7	31
(t-ratios)	(1.5)	(4.2)	(4.4)	(1.7)	(0.8)			
(3) Americas	= 2.5	+ 0.11	+ 0.29	+ 0.19	- 0.06	0.11	2.4	37
(t-ratios)	(2.7)	(2.0)	(1.7)	(1.4)	(-0.3)			
(4) Africa	= 2.7	+ 0.15	+ 0.01	+ 0.22	- 0.25	0.02	1.2	10
(t-ratios)	(1.2)	(1.0)	(0.0)	(1.4)	(-0.6)			

[1] Some non-Latin Caribbean countries are included in the sample and, with due apologies, are incorporated into the Latin-American group.

[2] E.g., J. K. Galbraith, "The Causes of Poverty: A Classification" in Economics, Peace and Laughter, Houghton-Mifflin, 1971.

[3] If observations for Cyprus, Tunisia, the UAR, Greece and Morocco are added to regression (2), the results change very little except for the coefficient for foreign private investment. They are as follows.

Growth =	1.1 +	0.23 +	0.47 +	0.21 +	0.12
(t-ratios)	(1.2)	(4.5)	(4.8)	(1.3)	(0.9)

R^2 = 0.44 F = 8.8 Sample = 38

The results of disaggregation by region also suggest another reason why some analyses of the effect of aid or total resource inflows on growth may have been unsatisfactory. An examination of the relationship which focuses on Latin America or Africa would show little effect of aid or total resource flows on growth. To draw conclusions for Asia from such analyses would obviously be incorrect. Similarly, analyses in one region of the effect of savings on growth can not be used to draw conclusions for other regions.

The Legitimacy of Pooling the 1950's and 1960's

Throughout this essay, data for the 1950's and 1960's are pooled. Since growth and savings are complex phenomena, affected by many interrelated causal variables, such pooling is desirable in order to minimize the random effect of excluded variables. Pooling is also desirable since data for only 34 countries were available for the 1950's, a relatively limited sample of the less developed world. To check whether such pooling is legitimate two rather simple tests were carried out. First, a dummy variable for the 1950's and the 1960's was introduced into the basic regression, (1), and, second, separate regressions for the 1950's and 1960's were compared.

			Foreign Resource Inflows			
		Savings	Aid	Investment	Other	Dummy
(5) Growth	= 1.5	+ 0.20	+0.39	+ 0.17	+0.19	-0.01
(t-ratios)	(2.4)	(5.8)	(5.6)	(2.4)	(2.0)	(-0.04)
(6) Growth '50's	= 1.0	+ 0.20	+0.61	+ 0.16	+0.04	
(t-ratios)	(1.3)	(4.6)	(4.3)	(7.0)	(0.2)	
(7) Growth '60's	= 1.8	+ 0.19	+0.33	+ 0.17	+0.17	
(t-ratios)	(1.8)	(3.6)	(3.5)	(2.0)	(1.3)	

Regression	(5)	(6)	(7)
Corrected R^2 =	0.36	0.50	0.22
F-Statistic =	10.7	9.6	4.8

The lack of significance of the dummy variable for the 1950's and 1960's provides support for the pooling of the two sets of data. In addition, in the separate, unpooled regressions the coefficients for savings and foreign private investment are practically identical. However, the coefficient for aid is significantly higher in the 1950's than in the 1960's, suggesting that aid was more effective in stimulating growth in the former decade. The sample of countries in the two decades was, of course, different. The underrepresentation of Africa in the 1950's and the consequent importance of Asia and of countries recovering from war and simultaneously receiving considerable aid (Greece, Israel, Korea Taiwan) may explain much of the difference in aid coefficients. (See the earlier discussion of regional differences). The low and insignificant

coefficient for "other" foreign inflows in the 1950's may be partly due to the relatively small importance of such flows. The mean was minus 0.008 percent of GDP (with a standard deviation of 1.8), and may have been of such limited importance for most countries that "other" inflows did, in fact, have little impact on growth.

Both the use of a dummy variable and a comparison of separate equations for the two decades lend support to the procedure of pooling data for the 1950's and 1960's. While two of the four coefficients vary for the two decades, the signs are identical, the differences are not very large and there are plausible explanations for them.

"Under-achieving" and "Over-achieving" Countries

One can obtain indirect information about the reliability of the regression results and on the mechanism of growth by examining the countries whose actual growth rate differed substantially from the growth rate predicted by the regression. There are eighteen notable over- or under-achievers among the 85 observations and in nearly all cases there are good reasons why the actual growth rate differed from the estimated growth rate by 2 percent of GDP or more.

Several over-achievers benefited from a highly favorable endowment of natural resources--cultivable but uncultivated land, copper or oil--which made possible an above-average growth rate for a given investment (Iran, Ivory Coast, Zambia). Other over-achievers experienced a rapid recovery from war, taking advantage of infrastructure already in place and unusual human resources (Japan, South Korea, Philippines, Taiwan).

Good economic management probably was a factor in the performance of a number of over-achievers, most notably Japan. Special circumstances are likely to have played a role in other cases: high income from tourism helped Mexico, income from invisibles was a factor in Panama, while Taiwan may well have received more capital than appeared in the accounts and certainly received a particularly well educated and experienced labor force.

On the other hand, the under-achievers include a number of countries whose governments put a very low priority on growth, or on any economic achievements for that matter (Burma, Ghana, Indonesia). Others lost a substantial part of their managerial and technical groups (Morocco, Burma) or suffered a deterioration in the terms of trade (Ghana and Argentina). In still other countries, most notably Argentina, savings rates were overestimated.

TABLE 6

COUNTRIES WHOSE ACTUAL GROWTH RATE DIFFERED SUBSTANTIALLY FROM PREDICTED GROWTH RATES
(on the basis of regression (1))

	Residuals in Growth Rate	
	1950's	1960's
Over-achievers		
Taiwan	+ 2.4	+ 3.8
Japan	+ 3.4	+ 0.7
Iran	+ 0.4	+ 2.3
Ivory Coast	-	+ 2.3
Mexico	+ 1.7	+ 2.2
Panama	+ 0.4	+ 2.1
Nicaragua	- 0.01	+ 2.1
Zambia	-	+ 2.1
Philippines	+ 2.05	- 1.5
South Korea	+ 1.7	+ 2.0
Under-achievers		
Trinidad-Tobago	-	- 2.0
Indonesia	+ 0.4	- 2.1
Morocco	- 0.4	- 2.25
Uruguay	- 2.5	- 0.4
Argentina	- 2.1	- 2.7
Burma	- 0.2	- 2.8
Ghana	-	- 3.6

The fact that there are plausible reasons for the performance of most countries whose growth rate was unexpectedly high or low increases confidence in the basic regression.

Other Factors and the Rate of Growth

In addition to savings and foreign resource inflows there is a variety of other factors that might be expected to affect the rate of growth, including the rate of exports, the level of education and the size of the manufacturing sector. However, when variables representing these factors were added to regression (1), they invariably proved to be not significant.[1] Regressions (8) and (9) are typical of these unsuccessful attempts. Exports were not significant whether measured on a per capita basis or as a percentage of GDP. The failure of exports and educational levels and of the share of manufacturing to be significantly correlated with growth is consistent with most other work.[2] In addition, some of the effect of exports on growth is probably picked up by savings (see below).

Hollis Chenery[3] concludes that the size of a country (in terms of population) and its per capita income influence its growth rate. He logged these two variables only, so this formulation is followed for comparability.[4] For the sample of 85 less developed countries

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[1]Other (manufactured) exports were significant at the 0.20 level, not very impressive as such analyses go.

[2]E.g., Chenery's results in "Economic Development Reports," op. cit. However, Robinson (op. cit.) in a model which incorporates structural change found educational levels to be a significant factor in growth.

[3]In "Economic Development Reports," op. cit.

[4]In addition, he used two forms for the per capita income variable: logged and logged squared. When both forms of the variable were introduced they were found to be very highly correlated (i.e.: 0.99) and did not to add to the results, so the logged square form was dropped.

		Savings	Foreign Resource Inflows: Aid	Invest.	Other	Exports: Primary	Other	Manuf. Sector	Educ. Level	Corr. R^2	F
(8) Growth	= 2.0	+ 0.17	+ 0.36	+ 0.11	+ 0.10	- 0.01	+ 0.16	- 0.01	+ 0.00	0.34	6.6
(t-ratios)	(2.7)	(3.7)	(4.9)	(1.4)	(1.0)	(-0.3)	(+0.3)	(-0.3)	-0.02		
(9) Growth	= 1.5	+ 0.19	+ 0.39	+ 0.12	+ 0.13			- 0.0	+ 0.01	0.34	8.5
(t-ratios)	(2.3)	(5.3)	(5.7)	(1.6)	(1.3)			(0.0)	(0.09)		
(10) Growth	= 1.9	+ 0.17	+ 0.36	+ 0.11	+ 0.10	- 0.00	- 0.16			0.36	9.1
(t-ratios)	(3.0)	(3.8)	(4.9)	(1.4)	(1.0)	(-0.2)	(+1.4)				

Notes: Exports and share of manufacturing sector calculated as percentage of GDP. Educational level is a composite index constructed by F. Harbison and C. A. Myers (in Education, Manpower and Economic Growth, New York: McGraw-Hill, 1964).

Sources: See Appendix.

used here, neither size nor per capita income were significantly correlated with growth. Again, the savings variable, related to per capita income (see below), may pick up most of the effect of per capita income.

		Income per capita logged	Population logged	Savings	Foreign Resource Inflows: Aid	Investment	Other
(11)	Growth = 3.0	- 0.36	+0.03	+ 0.22	+ 0.40	+ 0.18	0.19
	(t-ratios) (1.7)	(-1.1)	(0.2)	(5.8)	(5.9)	(2.1)	(1.9)

Corr. R^2 = 0.33 F = 11.5

When a formulation closer to Chenery's is used, with variables for investment and total foreign inflows substituted for savings and the components of inflows, size of country still is not significant. Although per capita income approaches significance in this formulation, its sign is negative.

		Income per capita logged	Population logged	Total investment	Foreign resource inflows
(12)	Growth = 4.6	- 0.61	+ 0.01	+ 0.21	+ 0.08
	(t-ratios) (2.8)	(-1.9)	(0.1)	(5.6)	(2.0)

There are several possible explanations for the difference between Chenery's results and those presented here. First, there is little discrepancy with respect to Chenery's two regressions which pooled

observations for both 1950's and 1960's: in his equations the size of country also has a low level of significance (t-ratios of 1.3 and 1.7) and per capita income is significant in only one equation (t-ratios of 1.3 and 2.2). It is only in some of the Chenery equations for the 1950's that both size of country and per capita income are clearly significant. Second, Chenery always includes the rate of change in exports in his regressions. Exports are highly correlated with savings (see below) and a given change in the rate of exports has a greater impact on savings in a smaller, more trade dependent economy. The coefficient for country size may therefore simply reflect the effect of exports on savings and of savings on growth. Third, Chenery's formulation differs somewhat from that used here, as do his sample (62 observations) and some of his variables. Finally, he does not disaggregate foreign resource inflows.

With the addition of further variables to the basic regression, the earlier results with respect to the relationship of growth to savings and aid remain unaffected. With six additional variables used in regressions (8) through (11) the coefficients for savings and aid remain essentially unchanged and highly significant.

The Rate of Savings

A closer look at factors which affect the savings rate might shed some further light on the causal relationship between savings and aid. One might expect savings to be affected by the size of the export sector. Exports often produce highly concentrated incomes, especially in the case of primary exports, with a large element of rent. Standard savings

theory could lead one to expect a high propensity to save out of such incomes. They are also administratively and politically easier to tax than more diffused wage or profit income, and therefore facilitate higher rates of government savings. In addition, countries with higher rates of exports tend to face less of a foreign exchange constraint on investment.

In fact, the correlation is high between savings and the rate of earnings from both primary and other exports (mostly manufactures), with a much higher coefficient for other exports. However, since other exports average only 1.3 percent of GDP for all countries, while the mean for primary exports is 18.1 percent of GDP, the latter are of greater importance in explaining savings rates for most countries. The addition of a dummy variable to distinguish the two decades again suggests that it is not incorrect to pool data for the 1950's and 1960's.

		Foreign Resource Inflows			Exports		
		Aid	Private Investment	Other	Primary	Other	Dummy
(13)	Savings = 11.4	-1.00	- 0.65	- 0.38	+ 0.20	+ 1.50	
	(t-ratios) (12.1)	(-7.1)	(-3.5)	(-1.6)	(5.4)	(7.0)	
(14)	Savings = 11.2	-1.02	- 0.67	- 0.37	+ 0.20	+ 1.47	+ 0.53
	(t-ratios) (11.4)	(-7.1)	(-3.5)	(-1.5)	(5.2)	(6.8)	(0.6)

Corr. R^2 = 0.62 & 0.61 F = 28.4 & 23.6

Note: All variables, except the dummy, are, as usual, percentages of GDP.

The strong negative correlation between savings and aid evident in regression (13) has been discussed earlier and it was suggested that in many cases it is more likely to be the result of exogenous factors affecting both, rather than a causal relationship. The negative correlation between savings and foreign private investment on the other hand, not evident earlier, requires further discussion. It may result in part from a statistical artifact. Domestic investment may be consistently underestimated, because direct self-investment by firms and farms often does not get fully picked up in the statistics. Foreign private investment may tend to be overestimated, in order to justify greater repatriation of profits or capital, to increase claims in case of nationalisation or to increase depreciation allowances. Estimates of domestic savings, the residual of total investment minus foreign inflows, would then vary greatly with foreign private investment. The higher the foreign private investment the lower, ceteris paribus, the estimated domestic savings.[1] This statistical artifact may partly explain the negative correlation of foreign private investment and savings. In addition for many countries this negative correlation seems to be the result of exogenous factors or of a time lag: high foreign investment resulted in high exports which were followed in a subsequent period by low foreign investment and high savings. The regression picks up the high savings--low foreign investment relationship of the second period.

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[1] This point was suggested by Raymond Vernon.

TABLE 7

COUNTRIES WITH EXCEPTIONALLY HIGH OR LOW SAVINGS RATES
(All figures as percentage of GDP)

Low Savers -- 9% of GDP or less.

	Growth	Savings	Aid	Foreign Private Investment	Primary Exports	Other Exports
			1950's			
Indonesia	3.6	7.4	.4	.6	11.5	.4
Pakistan	2.6	6.9	1.0	.0	4.1	.6
Panama	4.4	5.8	1.3	3.1	10.9	.2
Philippines	6.6	5.3	4.3	3.3	9.5	.3
S. Korea	7.3	4.8	8.0	0.0	1.5	.3
			1960's			
Bolivia	5.6	8.2	7.0	1.6	17.4	0.0
Guatemala	5.0	8.3	2.4	1.8	13.4	.5
Jordan	9.3	-2.5	18.6	1.0	14.5	.9
Liberia	6.0	-1.9	10.8	15.0	45.6	0
Nigeria	5.1	8.0	1.2	3.0	14.5	.4
S. Korea	7.6	5.4	7.0	.9	4.4	1.2
Average	5.7	5.1	5.6	2.8	14.3	.4

High Savers -- 18% of GDP or greater.

			1950's			
Burma	5.6	19.1	2.3	.2	19.8	.7
Iraq	5.8	27.2	1.7	-4.5	56.2	.2
Peru	4.6	19.4	.7	2.7	18.3	.8
Venezuela	7.8	28.0	.2	3.1	32.1	.3
Japan	10.5	28.4	- .1	.1	1.4	9.8

TABLE 7--Continued

High Savers -- 18% of GDP or greater.

	1960's					
	Growth	Savings	Aid	Investment	Primary Exports	Other Exports
Argentina	2.9	19.6	.1	.5	9.4	.4
Iraq	4.7	18.8	.8	.9	33.3	.3
Ivory Coast	8.1	18.5	3.3	2.2	31.2	.4
Malaysia	5.0	20.4	.7	1.3	39.0	1.9
Peru	5.5	19.8	.6	1.3	20.2	1.5
Thailand	7.7	18.7	1.2	1.3	17.1	.4
Trinidad-Tobago	5.2	20.0	1.4	6.8	50.8	1.3
Venezuela	4.5	27.7	0.0	- .2	31.0	.4
Zambia	8.2	32.0	-4.4	1.6	66.7	.5
Japan	9.4	36.0	- .1	+ .1	1.0	9.0
Average	6.3	24.0	.41	1.2	31.7	2.2

There are several examples of countries where both savings and foreign private investment were affected by exogenous factors. Among the low savers in the 1950's, in the Philippines the savings rate was affected by recovery from war, while foreign private investment reflected a return by U.S. capital after the Japanese occupation. In the 1960's, Nigeria's low savings rate in part resulted from the civil war, and high foreign investment followed the discovery of oil. Liberia was essentially a subsistence economy, with an expected low savings rate, but with an enclave of foreign investment attracted by her iron ore and other natural resources. In all these cases, high foreign private investment does not seem to have caused low domestic savings, but both seem to be more related to other factors.

On the other hand, several high savers were countries with concentrated export earnings which discouraged foreign investment for political and social reasons or where foreign investment had declined for economic reasons. Most of these countries had received substantial foreign private investment earlier, investment which had been instrumental in developing the exports that made savings possible. These countries include: Burma, Iraq, Venezuela, and Zambia. Again, low foreign inflows did not seem to cause high savings.

If the countries listed above are excluded, because foreign private investment probably did not cause high or low savings rates, then the remaining low savers have average rates of foreign private investment of 1.1 percent, while the high savers have average rates of 1.8 percent. No significant relationship seems to exist for these countries between rates of savings and rates of foreign private investment.

The close relationship between exports and savings is, however, confirmed by a look at countries with especially high or low savings rates. (Table 7) The high savers have rates of exports, both of primary and other (manufactured) products, which are more than twice the rate of low savers. In the analysis above, exports were not directly correlated with growth when savings, aid and foreign private investment were separate independent variables. However, exports do seem to affect savings rates, which in turn affect growth rates.

There is some evidence that many less developed countries fall into three groups with respect to savings, foreign inflows and growth: (Tables 8 and 9).

(a) Countries which are well endowed with natural resources: Often these were developed by foreign investors during an earlier period, in which case later foreign private investment is low or negative (Iraq, Ceylon, Venezuela in the 1960's). In other cases, heavy foreign private investment in mining, oil, or plantations was still taking place during the period under review (Liberia, Trinidad, Venezuela in the 1950's). These countries have a high level of primary exports, and consequently high savings rates and no severe balance of payments constraint. They have little need for foreign aid and receive little. In terms of total population none of these countries is large.

These then are countries with high savings, low aid, above average foreign private investment and above average growth rates.

(b) Countries that are rather poor in known natural resources and that have not yet developed much of an industrial sector: They often suffer from other economic, as well as political, difficulties. Both

primary and other exports are naturally low. Low exports and other problems mean low savings rates and little foreign private investment. Many of these countries are major aid receivers and the growth rate of individual countries depends very much on their level of aid. On the average, aid levels are inadequate to loosen the constraints imposed by low savings and low exports and growth is only average.

In sum, these are countries with low savings and average foreign private investment compensated by above average aid resulting in average growth rates.

(c) Countries which have become semi-industrialized (or industrialized in the case of Japan) and which export manufactures. However, only in the case of Japan is the level of manufactured exports comparable to the level of primary exports for countries rich in natural resources. The rate of savings of these countries then depends in part on their primary exports. Their rate of growth is a function of savings, aid and foreign private investment which vary greatly among these countries. Some are major aid recipients because they are politically important, and because they suffer from more serious savings and balance of payments constraints than the resource-rich. Since they already have a substantial industrial base they are countries which grow rapidly if they receive substantial foreign inflows.

This group includes countries with variable savings, aid, foreign private investment and growth rates, but since all have above average exports of manufactures and several have above average primary exports or foreign inflows, they show the highest average growth rate of all three groups.

There are of course countries that do not fall into any of these three categories. Argentina and Mexico are examples. The clearest way to classify countries to which the categories seem to apply is in terms of the levels of primary and manufactured exports. This is done in Tables 8 and 9, which provide some evidence that the classification has a degree of validity.

TABLE 8

PATTERNS OF EXPORTS, SAVINGS AND FOREIGN INFLOWS
(all as percentage of GDP)

Country	Decade	Growth	Savings	Aid	Foreign Private Investment	Exports	
						Primary	Other
(a) High Primary Exports (29% of GDP or more)							
Ceylon	50's	2.9	13.3	1.1	0.0	31.6	0.1
Cyprus	60's	5.2	15.3	1.8	1.8	33.0	2.8
Iraq	50's	5.8	27.2	1.7	-4.5	56.2	0.2
	60's	4.7	18.8	0.8	0.8	33.3	0.3
Ivory Coast	60's	8.1	18.5	3.3	2.2	31.2	0.4
Jamaica	60's	4.4	16.3	0.7	1.4	33.0	3.1
Liberia	60's	6.0	9.2	10.8	15.0	45.6	0.0
Malaysia	60's	5.0	20.4	0.7	1.3	39.0	1.3
Panama	60's	7.6	13.3	2.2	2.9	34.1	0.2
Tanzania	60's	4.5	12.8	1.4	-0.2	29.6	0.6
Trinidad-Tobago	60's	5.2	20.0	1.4	6.8	50.8	1.5
Venezuela	50's	7.8	28.0	0.2	3.1	32.1	0.3
	60's	4.5	24.7	0.0	-0.2	31.0	0.4
Zambia	60's	8.2	32.0	-4.4	1.6	66.7	0.5
	Average	5.7	19.2	1.5	2.2	39.0	0.8

TABLE 8--Continued

Country	Decade	Growth	Savings	Aid	Foreign Private Investment	Exports Primary	Exports Other
(b) Low Primary and Manufactured Exports (below 10% and 1.5% of GDP respectively)							
Brazil	50's	5.6	14.8	1.4	0.9	8.1	0.2
	60's	4.1	15.6	0.8	0.8	8.4	0.3
Chile	50's	2.8	9.1	0.5	0.3	9.8	0.9
Greece	50's	5.1	10.0	3.3	2.9	8.4	0.9
	60's	7.2	15.7	1.9	3.8	8.4	1.1
Indonesia	60's	2.5	11.3	1.9	0.1	7.4	0.1
Pakistan	50's	2.6	6.9	1.0	0.0	4.1	0.6
Philippines	50's	6.6	5.3	4.3	3.3	9.5	0.3
South Korea	50's	7.3	4.8	8.0	0.0	1.5	0.3
	60's	7.6	5.4	7.0	0.9	4.4	1.2
Taiwan	50's	7.8	9.3	4.5	0.1	9.0	0.1
Turkey	50's	5.4	11.8	1.3	0.03	8.8	0.0
	60's	4.3	12.8	0.3	2.6	6.6	0.5
Average		5.3	10.2	2.8	1.2	7.3	0.5

TABLE 8--Continued

Country	Decade	Growth	Savings	Aid	Foreign Private Investment	Exports Primary	Exports Other
(c) High Manufactured Exports (1.7% of GDP or higher)							
Cyprus	60's	5.2	15.3	1.8	1.8	32.7	2.8
India	50's	3.9	11.0	0.5	-0.3	3.4	2.4
	60's	3.5	11.3	2.1	0.02	2.6	2.1
Israel	50's	9.1	9.4	10.3	1.5	4.1	5.3
	60's	7.5	13.9	5.8	5.6	6.1	11.7
Jamaica	60's	4.4	16.3	0.7	1.4	33.0	3.1
Japan	50's	10.5	28.4	-0.1	0.14	1.4	9.8
	60's	9.4	36.0	-0.1	0.1	1.0	9.3
Kenya	60's	5.5	15.9	10.0	-3.8	20.9	2.4
Pakistan	60's	5.6	11.3	3.8	0.1	4.5	1.7
Syria	50's	6.8	14.3	1.7	0.3	22.8	3.2
Taiwan	60's	9.7	15.4	2.6	1.0	10.3	4.9
Tunisia	60's	5.3	9.5	7.1	4.3	14.9	4.9
UAR	60's	6.0	12.0	4.2	-0.5	17.4	2.5
	Average	6.6	15.7	3.6	.8	12.5	4.7

TABLE 9

SUMMARY OF PATTERNS OF EXPORTS, SAVINGS AND FOREIGN INFLOWS

	Growth	Savings	Aid	Foreign Investment	Primary Exports	Other Exports
Average for 34 countries in 50's	5.0	13.4	1.7	0.9	15.9	1.0
Average for 51 countries in 60's	5.6	14.1	2.6	1.9	19.7	1.5
Average for 85 observations	5.3	13.8	2.3	1.3	18.1	1.3
(a) High primary exports, low aid pattern	5.7	19.2	1.5	2.2	39.0	0.8
(b) Low primary exports, high aid pattern	5.3	10.2	2.8	1.2	7.3	0.5
(c) High manufactured exports, variable aid pattern	6.6	15.7	3.6	0.8	12.5	4.7

Table 7 (dealing with countries with especially high and low savings rates) and Tables 8 and 9 (concerning those with especially high and low rates of exports for primary and manufactured products) do provide further evidence about the patterns suggested by the regressions for all countries in the sample: that high exports go together with high savings and low aid inflows.[1]

The Effect of Country Size and Per Capita Income on Savings

While the size of a country and its per capita income were not significant variables in explaining its growth rate, they are highly correlated with the savings rate. The effect of per capita income on the savings rate is consistent with much theoretical and empirical work on savings.[2] The positive correlation of population size with savings rates

		Income per capita logged	Population logged	Total foreign inflow	Exports Primary	Exports Other
(15)	Savings = -13.3	+ 3.69	+ 1.60	- 0.64	+ 0.28	+ 1.13
	(t-ratios) (-3.2)	(5.7)	(4.3)	(-7.5)	(7.34)	(5.7)
(16)	Savings = -23.8	+ 4.5	+ 2.9		+ 0.37	+ 0.79
	(t-ratios) (-4.7)	(5.5)	(6.6)		(7.9)	(3.2)
(17)	Savings = -6.4	+ 4.1	+ 0.52	-0.79		
	(t-ratios) (-1.4	(5.1)	(1.3)	(-6.7)		
	Corr. R^2 = 0.72, 0.52, 0.45		F = 4.5, 24.5, 24.3			

[1]The categories in these tables, with a focus on the magnitude and composition of the inflow of foreign resources, of course differ from the patterns discerned by Hollis Chenery, whose concern was with structural change and development strategy.

[2]Sommers and Suits, op. cit.

appears more surprising. Why should larger countries have a higher propensity to save than smaller countries? Explanations sometimes run in terms of the efficiencies of larger economies, or of the benefits of external economies, but they do not appear to be very convincing, especially since population is a poor proxy for the economic size of a country. A simpler explanation may be that, as expected, size of country and proportion of GDP exported are negatively correlated, with larger countries less dependent on international trade. Exports equivalent to a given percentage of GDP would then be more favorable to savings in a large than in a small country. A small country exporting 10 percent of its GDP may suffer from a severe balance of payments constraint on investment, which discourages savings, and which affects the functioning of the economy in general. On the other hand, a large country with the same export ratio may be quite well off and capable of a high rate of savings. Size of country may have no real effect on savings and their correlation may be the result of the size of country affecting the impact on savings of a given rate of exports. The negative correlation between primary exports and size of population lends support to this argument. So does the sharp decline in the coefficient for size and in its significance once exports are eliminated as an independent variable (regression 17).

TABLE 10

CORRELATION AMONG PER CAPITA INCOME, SIZE OF COUNTRY AND EXPORTS

	Population (size)	Inflows	Primary Exports	Other Exports
Foreign Inflows	- 0.31			
Primary Exports	- 0.52	- 0.12		
Other Exports	- 0.08	0.21	- 0.26	
Per capita income	- 0.43	0.13	0.04	0.33

A few other relationships among the independent variables are also interesting. The larger countries in terms of population are on the whole poorer and receive lower inflows. The correlation between per capita income and primary exports is not significant.

Some Conclusions

In the extensive literature on less developed countries it seemed to be tacitly accepted until recently that saving was primarily a function of various domestic factors--notably per capita income and changes in income--and that foreign resources available to a country were simply added to savings in determining the rate of investment. A number of consequences followed, including calculations of foreign aid requirements derived from the difference between desired rates of investment and feasible rates of savings.

In the late 1960's a number of papers questioned these assumptions, concluding that foreign resource inflows, and especially aid, had a negative effect on domestic savings and that not all foreign resources would flow to investment. These two contentions were often not clearly separated, but both were more consistent with traditional economic thinking than the assumptions that had been generally accepted for nearly twenty years.

The use made of foreign resources and their effect on domestic savings can be traced only with difficulty, since there is no definitive answer to the question of what would have happened in a particular country if the level of foreign inflows had been different. Most recent analyses have simply measured the correlation between savings (or investment) and total foreign inflows over time in a country or on a cross-country basis and found the correlation to be negative.

The greatest weaknesses of these analyses are not the neglect of an explicit savings function, nor the statistical and conceptual shortcomings which they generally exhibit. The problem is rather an inadequate specification of the model which they test. If foreign inflows and savings rates both respond in many cases to the same exogenous factors, then they would be correlated without being causally related. Such exogenous factors affect most directly the availability of foreign aid, the largest component of foreign inflows. Aid seems to go disproportionately to countries with low per capita incomes and serious balance of payments constraints, as well as to those suffering from political, social and economic crises; the after-effects of war and other conflicts, deterioration in the terms of trade, a series of poor harvests and so on.

These are also the countries and the time periods with low or reduced savings rates. Some inflows other than aid, especially the use of foreign exchange reserves and suppliers credits, are also likely to be higher during periods of crisis and low savings. There are numerous examples of countries where savings and foreign inflows were negatively correlated, although there appeared to be no causal relationship. Since growth is in part a function of investment, there was also no strong correlation between foreign inflows and growth rates in these instances.

If one then assumes that savings are not affected directly by inflows, admittedly also a strong assumption for all times and countries, one can examine the relationship of growth with savings and the components of foreign inflows: aid, private investment and other flows. Together these components of investment explain over a third of the growth rate in a cross-country analysis with 85 observations for the 1950's and 1960's. As one might expect, foreign aid, which goes disproportionately to countries with low savings rates and serious balance of payments problems, has a more significant effect on growth than savings or the other forms of foreign resource inflows. Since the coefficient for aid is approximately twice that for either savings or other inflows, analyses which lump all inflows together in a single variable leave something to be desired. The correlation between aid and the other forms of inflows is not high, again casting doubt on the appropriateness of amalgamating inflows and contradicting the notion that aid flows primarily to "dependent" countries exploited by private investors from the donor country. The coefficients for savings, aid, foreign private investment and other inflows are substantially higher and more significant for Asian and Mediterranean

countries than for sub-Saharan Africa and Latin American countries supporting the notion that capital and foreign exchange are less serious constraints in the latter. No significant correlation was found between growth and such other factors as: level of exports, education, the size of the manufacturing sector, per capita income or the population (size) of the country.

Some of these variables are, however, very significantly correlated with the rate of savings and therefore affect growth indirectly. The cross-country analysis supports the traditional notion that savings rise with per capita income. They are also significantly correlated with size of country, but this probably just reflects the relationship between savings and exports, i.e., exports of a given percentage of GDP are more favorable for growth in a larger than in a smaller (more trade dependent) economy. Exports, and especially primary exports, are highly correlated with savings, most probably because such exports often produce highly concentrated incomes, partly in the form of rent, which tend to be associated with high propensities to save and high government revenues. High levels of exports also release the foreign exchange constraint on investment and therefore on savings.

There is some evidence that three groups of countries can be distinguished with respect to the inflow of foreign resources and their effect:

(i) those rich in natural resources, with a high level of primary exports and a high level of savings, a low level of foreign aid and only a moderate inflow of foreign private investment during the period under review,

(ii) those poor in natural resources and not yet among the semi-industrialized, with low rates of both primary and manufactured exports, with low savings rates, often with high aid inflows and low rates of foreign private investment,

(iii) semi-industrialized countries, with manufactured exports, which are, however, at a level inadequate to ease savings and balance of payments constraints so that savings rates remain partly dependent on primary exports, and growth depends on the level of foreign inflows and of savings.

The quantitative evidence provided about factors affecting the rates of growth and savings is suggestive, but hardly conclusive. It might have a greater degree of reliability than similar quantitative work since it is based on a larger sample than most recent analyses and since it specifically distinguishes the components of foreign inflows, avoids some statistical errors and includes more variables than some other analyses. However, it suffers from all of the problems of cross-country analysis. Above all, there is, of course, no assurance that the model tested is not misspecified. The correlations found may be due to excluded variables and may be quite unrelated to causality. The results do suggest that the analyses which cast doubt on the effectiveness of foreign inflows, especially aid, in promoting growth are not strongly supported by the data. The earlier [illegible]tion of the value of such inflows, and especially of aid, for growth may be closer to the truth.

Statistical Appendix to

"AID, FOREIGN PRIVATE INVESTMENT, SAVINGS AND GROWTH IN LESS DEVELOPED COUNTRIES," Economic Development Report, Report No. 195.

DATA FOR 34 COUNTRIES IN THE 1950's and 51 COUNTRIES IN THE 1960's ON GROWTH, AID, FOREIGN PRIVATE INVESTMENT, OTHER FOREIGN RESOURCE INFLOWS, SAVINGS, PRIMARY AND OTHER EXPORTS

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A great deal of recent work on less developed countries has used cross country analysis. (See citation in the paper to which this is the Appendix). The crucial requirement for such work obviously is reasonably comparable data for a large number of countries. However, the compilation of such data is a very large undertaking. The United Nations, the World Bank and Hollis Chenery and his associates have done a great deal of work in this field. This compilation represents an attempt to take the work a small step further. It differs from other approaches primarily in the following:

1. Most measures of the growth rate compare initial and terminal years over a five to ten year period or use two to three year moving averages. For less developed countries, where the weather affects 40-70 percent of the GDP, and where a bad harvest can affect GDP for several years, such measures have obvious weaknesses. A regression on time over an eight to ten year period (where possible) has been used to avoid this problem.

2. Most compilations use official data only. A larger sample of countries can be obtained and the reliability of the series can be increased if various sources and, occasionally, separate country monographs are used.

3. Most analyses have used a single variable for total foreign inflows (sometimes called foreign savings, or capital transfers). However, the effect of such inflows quite obviously differs for different forms. Aid does not have the same effect on growth or savings as short-term speculative movements or changes in reserves, or suppliers' credits.

Foreign inflows have been disaggregated into aid, foreign private investment and all other flows to permit a separate analysis of the different forms.

This disaggregation is the most significant new feature of the data. Classification is to some extent arbitrary and the margin of error is probably considerable for some countries.

4. The distinction between primary and other (manufactured) exports has been made by Chenery and associates. However, some reclassification of exports was undertaken, since some unprocessed and semi-processed metals seem to have slipped, inappropriately in our view, into the other (manufactured) category--(silver, non-ferrous metals, etc.).

Definition of the Sample

The sample consisted of 34 countries for the 1950's and 51 countries for the 1960's. All of the countries were "less developed," defined here as having a per capita income of less than $625 in 1950, but excluding European countries with the exception of Greece. Other European countries were excluded because (i) foreign inflows are difficult to define for the Communist countries, given the prices used for trade among them, and there was generally no foreign investment in these countries, (ii) the nature of the aid programs for most European countries differed from that for the ldcs, (iii) the economic structure of most poor European countries, in terms of the contribution of industry to GDP, for instance, differed from that of most ldcs, (iv) conventionally, analyses of less developed countries also exclude all European countries, except for Greece.

Bolivia is excluded from the 1950's sample because of atypical developments and unreliable data as a result of the 1952 Revolution. Where the economy was very healthy in 1951, with a 6.4 percent increase in GDP, in 1953 the Bolivian economy had a disastrous 11.4 percent decline in GDP. (See Wilkie, James, The Bolivian Revolution, Latin American Center, UCLA, 1969.) The inclusion of Bolivia in the 1950's in the sample results (in the basic regression) in a change in some coefficients, a small decrease in most t-ratios (and, therefore decline in significance), and a decrease in the corrected R^2.

		Savings	Aid	Investment	Other
Growth, with Bolivia	= 1.62	+ 0.2	+ .31	+ .15	+ .29
(t-ratio)		(2.44)	(5.42)	(4.43)	(2.03)	(3.02)
Corrected R^2 = .30			F-Statistic = 10.63		
Growth, without Bolivia	= 1.48	+ 0.2	+ .39	+ .17	+ .19
(t-ratio)		(2.45)	(5.98)	(5.81)	(2.52)	(2.08)
Corrected R^2 = .37			F-Statistic = 13.51		

However, the results are basically unchanged. Since one would not expect any relationship of savings and foreign inflows with growth during a revolution, it seemed legitimate to exclude Bolivia.

Country Sample S = 85

1950's S = 34

Argentina
Brazil
Burma
Ceylon
Chile
Colombia
Costa Rica
Dominican Republic
Ecuador
El Salvador
Greece
Guatemala
Honduras
India
Indonesia
Iran
Iraq
Israel
Japan
Mexico
Morocco
Nicaragua
Pakistan
Panama
Paraguay
Peru
Philippines
South Korea
Sudan
Taiwan
Thailand
Turkey
Uruguay
Venezuela

1960's S = 51

Argentina
Bolivia
Brazil
Burma
Ceylon
Chile
Colombia
Costa Rica
Cyprus
Dominican Republic
Ecuador
El Salvador
Ethiopia
Ghana
Greece
Guatemala
Honduras
India
Indonesia
Iran
Iraq
Israel
Ivory Coast
Japan
Jamaica
Jordan
Kenya
Liberia
Malaysia
Mexico
Morocco
Nicaragua
Nigeria
Pakistan
Panama
Paraguay
Peru
Philippines
South Korea
Sudan
Syria
Taiwan
Tanzania
Thailand
Trinidad-Tobago
Tunisia
Turkey
UAR
Uruguay
Venezuela
Zambia

Conceptual and Statistical Measurement Issues and Sources

Growth Rates

1) A simple regression on time has been used as the best measure of the growth rate.

2) Source: a compilation by O. Halim of the United Nations, of U.N. data for 1950 to 1960 and for 1960 to 1968 was used for the calculation of growth rates in the 1950's and 1960's, respectively. The data are in constant prices and U.S. dollars, generally translated at the official exchange rate.

Exceptions are the growth rates for Iraq and Thailand in the 1950's and Liberia, Nigeria, Sudan, and Turkey in the 1960's. Their data were grossly inconsistent with other sources and with informed opinion. With the exception of Liberia, for these countries the "World Tables" of the IBRD were used. These are initial year-terminal year comparisons, and therefore subject to distortion due to any unusually good or bad special circumstances in an initial or terminal year.

Liberian growth rate was calculated on an initial year-terminal year method from GDP data (1960-67) given in Table 1.1, Economic Survey, 1967. Dept. of Planning and Economic Affairs, Republic of Monrovia, Liberia, June 1968.

Foreign Resource Inflows

1) For most countries the magnitude of foreign resource inflows was a small proportion of GDP (2-6% typically), so that the correlation

between the level of GDP and foreign resource inflows is not high. On the other hand, the rate of growth of GDP, the dependent variable, is logically related more closely to foreign resource inflows measured as a percent of GDP, rather than on a per capita basis. If the capital-output ratio is not related to per capita income, a given resource inflow per capita added to investment will produce an identical increase in output in two countries with different per capita incomes. However, this increase in output makes a different contribution to growth, measured as a percentage of GDP, in two countries with different per capita GDPs and the same population. Foreign resource inflows are therefore measured as a percentage of GDP.

2) Source: The total inflow of foreign resources (as a percentage of GDP) is taken from the IBRD World Tables, Table 3. They provide data on average imports and exports of goods and services separately for the decades of the 50's and the 60's. The difference, plus net factor payments to abroad (taken from IBRD World Tables, Table 3) has been taken as total foreign inflows. An exception to this is Indonesia (1950's) where World Tables data is available only for 1958 and 1959. Total inflows has been constructed from the IMF Balance of Payments Yearbook and O. Halim, UN data.

The same source, Table 8, also gives a breakdown of foreign inflows at five-year intervals. The average for 1950 and 1955 has been used to break down the average total inflow for the 1950's, and that for 1960 and 1965 to break down the average inflow for the 1960's into aid, foreign private investment, and other inflows. Aid includes net transfers received by the government and government long-term borrowing.

Investment is the sum of private long-term borrowing and net private direct investment, and Other includes net private transfers received, total net short-term borrowing, other capital (net), and errors and omissions.

For many countries the two years used to construct the annual average is atypical, and the "aid, investment, and other" breakdown is taken from IMF Balance of Payments Yearbook. These countries are Burma, Ceylon, Colombia, Greece, India, Indonesia, Iran, Iraq, Israel, Japan, Morocco, Panama, Peru, Philippines, South Korea, Thailand, and Uruguay in the 1950's and Bolivia, Brazil, Ceylon, Costa Rica, Cyprus, Dominican Republic, Ghana, Greece, India, Indonesia, Iran, Iraq, Israel, Ivory Coast, Japan, Jordan, Kenya, Mexico, Nicaragua, Pakistan, Panama, Sudan, Syria, Tanzania, Thailand, Trinidad-Tobago, Tunisia, Turkey, UAR, Uruguay, and Zambia in the 1960's.

Liberia (1960's) inflow data are taken from Economic Survey, 1967, Dept. of Planning and Economic Affairs, Republic of Liberia, Monrovia, June, 1968, and covers years 1965 through 1967.

Primary Exports

1) Identical exports as a percentage of GDP are unlikely to make an identical contribution to the growth of countries of different size. Caeteris paribus, the smaller the market available in a country, the higher its percentage exports need to be for a given growth rate, since a small country is more heavily dependent on international trade. "Size" of markets is partly related to the number of consumers, partly to their average income and partly to the structure of the economy and

income distribution. An attempt was made to establish the relationship between the size of 40 economies (measured by (i) GDP and (ii) population and per capita income) and their exports. However, the effect of size was dominated and swamped by the effect of natural resource endowment on exports, i.e.: the variance was simply too great to produce significant results in the various regressions that were tried.

Because foreign resource inflows are measured as percentage of GDP (for reasons see above) it is desirable to have primary exports in the same form. Therefore regressions are calculated with primary exports measured in percentage terms.

2) Source of information: Primary exports as a percentage of GDP (1955 and 1960 figures) are taken from Hazel Elkington, Statistical Appendix to "A Uniform Analysis of Development Patterns", Economic Development Report No. 158, Project for Quantitative Research in Economic Development, Center for International Affairs, Harvard, June 1970. The Elkington definition of primary exports (food, unmanufactured tobacco leaf, inedible minus synthetic fibers, crude or partly refined oil, natural gas, oils and fats, wild animals) was used throughout. For some countries, however, data for the desired year were omitted, or the classification of particular exports into "primary" and other appeared to be incorrect. (e.g.: in the case of Burma (1960) export of precious and semi-precious stones had been included in manufactured, and not primary, exports.) For these countries data were collected directly from the U.N. Yearbook of International Trade Statistics, and converted to a percentage measure using

GDP data from IBRD World Tables, Table 4. These countries are (1955) Ceylon, Costa Rica, El Salvador, Guatemala, India, Mexico, Morocco, Panama, Paraguay, Peru, Taiwan, Uruguay, and (1960) Bolivia, Brazil, Burma, Colombia, Cyprus, Ethiopia, Ghana, Guatemala, Kenya, Liberia, Malaysia, Mexico, Morocco, Nicaragua, Pakistan, Panama, Paraguay, Peru, Trinidad-Tobago, Tunisia, UAR, Syria, and Zambia.

The following further adjustments have been made:

1. Bolivia (1960) - non-ferrous metals added
2. Burma (1960) - precious, semi-precious stones, and non-ferrous metals added
3. Greece (1955) - silver added
4. India (1955) - silver added
5. Kenya (1960) - non-ferrous metals added
6. Liberia (1960) - industrial diamonds added
7. Malaysia (1960) - tin added
8. Mexico (1955) - non-ferrous metals added
9. Nicaragua (1960) - unworked and partly worked silver and copper added
10. Peru (1960) - gold added
11. Tunisia (1960) - non-ferrous metals added
12. Zambia (1960) - copper added

Other Exports

1) Other exports are essentially equivalent to manufactured exports and are calculated as the difference between total exports and primary exports.

2) Source: Total exports as a percentage of GDP are taken from the Statistical Appendix to "A Uniform Analysis of Development Patterns," with the same exceptions as mentioned above.

Savings

1) Savings are calculated as a percentage of GDP. For the 1950's, the average savings rate for 1950 to 1959 is used, for the 1960's, the average rate for 1960 to 1965.

2) Source: Data are taken from IBRD World Tables, Table 3.

The single exception here is Liberia, whose source of savings is Richard M. Barkay, Public Sector Accounts of Liberia, Monrovia, 1965, and is the savings for 1964.

Manufacturing

1) Manufacturing is measured as a percentage of GDP.

2) Source: IBRD World Tables, Table 4, column 8.

Human Resource

1) The human resource variable is a measure of the amount of completed education and is a composite index. This index is the arithmetic total of the enrollment at the second level of education as a percentage of the age group 15 to 19, adjusted for length of schooling and the enrollment at the third level (higher education) as a percentage of the age group multiplied by a weight of five. (Years 1960 and 1955 have been used.)

2) Source: Harbison, Frederick and Charles A. Myers, Education, Manpower, and Economic Growth, New York: McGraw-Hill Book Co., 1964, for all countries in the 1960's with the exception of Ceylon, Cyprus, El Salvador, Honduras, Jordan, Morocco, Nicaragua, Panama, Philippines, Syria, Trinidad-Tobago, and Zambia, which were not included in the Harbison-Myers sample. Data for these countries were taken from

Irma Adelman and Cynthia Morris, Society, Politics, and Economic Development, which used the H-M index (unadjusted for length of schooling) to extend the sample.

For all the countries in the 1950's, we constructed the H-M index (without adjusting for length of schooling), based on 1955 data. The source of school enrollment data is UNESCO-World Survey of Education, Vol. III; and population, UN Demographic Yearbook, 1962, 1963, 1965.

DATA TABLES

Note: See Appendix Notes for actual years representing variables.

COUNTRY	DECADE	INCOME as % GDP	POPULA. (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
ARGENTINA	1950's	646.0000	18.89999	3.200000	17.89999	0.9000000	0.3000000
ARGENTINA	1960's	691.0000	20.70000	2.900000	19.59999	0.8000000	0.7999998E-01
BOLIVIA	1960's	122.0000	3.500000	5.599999	8.200000	7.000000	7.000000
BRAZIL	1950's	184.0000	60.20000	5.599999	14.80000	1.200000	1.400000
BRAZIL	1960's	210.0000	69.70000	4.099999	15.60000	1.000000	0.8000000
BURMA	1950's	49.00000	20.39999	5.599999	10.09999	0.0	2.299999
BURMA	1960's	59.00000	22.39999	2.500000	17.00000	0.8000000	1.219999
CEYLON	1950's	130.0000	8.700000	2.900000	13.30000	-0.8000000	1.099999
CEYLON	1960's	134.0000	9.900000	4.400000	11.40000	1.900000	1.410000
CHILE	1950's	303.0000	6.799999	2.799999	9.099999	0.8000000	0.5000000
CHILE	1960's	414.0000	7.700000	4.599999	13.90000	3.799999	2.719999
COLOMBIA	1950's	237.0000	13.20000	4.500000	17.50000	0.2000000	0.4000000
COLOMBIA	1960's	246.0000	15.40000	4.700000	17.39999	2.200000	0.7000000
COSTA RICA	1950's	332.0000	1.000000	5.400000	14.70000	4.400000	2.299999
COSTA RICA	1960's	339.0000	1.299999	6.400000	15.30000	4.799999	2.200000

COUNTRY	DECADE	INCOME as % GDP	POPULATION (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
CYPRUS	1960's	491.0000	0.6C00000	5.200000	15.30000	4.299999	1.849999
DOM. REPUBLIC	1950's	232.0000	2.5C0000	5.900000	16.09999	-0.9999996E-01	1.549989
DOM. REPUBLIC	1960's	252.0000	3.000000	2.900000	10.80000	2.900000	3.099999
ECUADOR	1950's	166.0000	3.799999	4.700000	13.60000	0.7000000	0.8000000
ECUADOR	1960's	179.0000	4.400000	4.599999	12.20000	2.500000	1.799999
ELSALVADOR	1950's	201.0000	2.099999	4.099999	10.00000	-0.3000000	0.1500000
EL SALVADOR	1960's	209.0000	2.500000	5.900000	12.20000	2.599999	0.9000000
ETHIOPIA	1960's	49.00000	20.70000	4.099999	10.00000	2.200000	3.500000
GHANA	1960's	222.0000	6.799999	2.200000	12.20000	6.599999	3.500000
GREECE	1950's	335.0000	8.000000	5.099999	10.00000	8.799999	3.339999
GREECE	1960's	412.0000	8.299999	7.200000	15.70000	9.299999	1.900000
GUATEMALA	1950's	240.0000	3.295999	4.000000	9.900000	1.400000	1.299999
GUATEMALA	1960's	266.0000	3.799999	5.000000	0.299999	3.400000	2.400000
HONDURAS	1950's	174.0000	1.700000	3.599999	13.40000	1.700000	0.3000000
HONDURAS	1960's	189.0000	1.900000	5.299999	12.60000	1.500000	1.000000

COUNTRY	DECADE	INCOME as % GDP	POPULATION (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
INDIA	1950's	77.00000	386.5999	3.900000	11.00000	0.2000000	0.2000000
INDIA	1960's	85.00000	429.0000	3.500000	11.30000	2.299999	2.000000
INDONESIA	1950's	86.00000	83.09999	3.599999	7.400000	1.059999	0.4100000
INDONESIA	1960's	89.00000	93.50000	2.500000	11.30000	2.400000	1.900000
IRAN	1950's	156.0000	18.29999	5.299999	14.60000	1.500000	1.099999
IRAN	1960's	178.0000	21.50000	7.299999	15.50000	1.370000	0.7300000
IRAQ	1950's	172.0000	5.900000	5.799999	27.20000	-1.799999	1.700000
IRAQ	1960's	204.0000	6.900000	4.700000	18.79999	2.400000	0.8500000
ISRAEL	1950's	672.0000	2.099999	9.099999	9.400000	20.29999	10.30000
ISRAEL	1960's	649.0000	2.099999	7.500000	13.90000	15.30000	5.799999
IVORY COAST	1960's	181.0000	3.299999	8.099999	18.50000	0.0	3.299999
JAPAN	1950's	338.0000	89.00000	10.50000	28.39999	-0.3000000	-0.8999997E-01
JAPAN	1960's	515.0000	93.20000	9.400000	36.00000	0.9999995E-01	-0.6999999E-01
JAMAICA	1960's	382.0000	1.599999	4.400000	16.29999	4.299999	0.7000000
JORDAN	1960's	159.0000	1.700000	9.299999	-2.500000	19.29999	18.59999

COUNTRY	DECADE	INCOME as % GDP	POPULATION (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
KENYA	1960's	79.00000	8.099999	5.500000	15.90000	1.200000	10.00000
LIBERIA	1960's	146.0000	1.000000	6.000000	-1.900000	25.39999	10.80000
MALAYSIA	1960's	226.0000	7.000000	5.000000	20.39999	-1.000000	0.7000000
MEXICO	1950's	330.0000	30.59999	6.099999	13.00000	1.400000	0.3000000
MEXICO	1960's	376.0000	36.00000	6.700000	13.30000	1.799999	0.9999996E-01
MOROCCO	1950's	183.0000	10.10000	2.000000	13.70000	-0.4000000	0.5000000
MOROCCO	1960's	165.0000	11.60000	3.599999	10.30000	-0.6000000	2.639999
NICARAGUA	1950's	245.0000	1.200000	5.000000	11.00000	3.900000	3.200000
NICARAGUA	1960's	237.0000	1.400000	7.400000	14.20000	3.099999	2.000000
NIGERIA	1960's	67.00000	52.00000	5.099999	8.000000	5.400000	1.190000
PAKISTAN	1950's	70.00000	83.29999	2.599999	6.900000	1.400000	1.000000
PAKISTAN	1960's	73.00000	92.70000	5.599999	11.30000	3.799999	3.799999
PANAMA	1950's	330.0000	0.9000000	4.400000	5.799999	6.400000	1.299999
PANAMA	1960's	363.0000	1.099999	7.599999	13.30000	5.299999	2.190000
PARAGUAY	1950's	183.0000	1.599999	3.099999	12.80000	2.200000	2.200000

COUNTRY	DECADE	INCOME as % GDP	POPULATION (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
PARAGUAY	1960's	184.0000	1.799999	4.299999	11.80000	1.400000	0.5200000
PERU	1950's	224.0000	8.799999	4.599999	19.39999	4.000000	0.7000000
PERU	1960's	258.0000	10.00000	3.500000	19.79999	1.500000	0.6000000
PHILIPPINES	1950's	125.0000	23.59999	6.599999	5.299999	6.500000	4.299999
PHILIPPINES	1960's	135.0000	27.39999	4.400000	13.80000	5.500000	3.190000
S. KOREA	1950's	99.00000	21.39999	7.299999	4.799999	8.099999	8.000000
S. KOREA	1960's	106.0000	24.70000	7.599999	5.400000	8.700000	7.000000
SUDAN	1950's	70.00000	10.20000	3.700000	9.599999	-0.3000000	0.9999996E-01
SUDAN	1960's	77.00000	11.80000	7.200000	12.00000	4.299999	3.000000
SYRIA	1960's	140.0000	4.599999	6.799999	14.30000	2.700000	1.700000
TAIWAN	1950's	129.0000	8.900000	7.799999	9.299999	6.200000	4.500000
TAIWAN	1960's	149.0000	10.60000	9.700000	15.40000	4.299999	2.620000
TANZANIA	1960's	67.00000	10.00000	4.500000	12.80000	-0.4000000	1.400000
THAILAND	1950's	89.00000	22.79999	6.400000	13.40000	1.900000	1.900000
THAILAND	1960's	97.00000	26.39999	7.700000	18.70000	1.500000	1.200000

COUNTRY	DECADE	INCOME as % GDP	POPULATION (millions)	GROWTH RATE	SAVINGS as % GDP	TOTAL INFLOWS as % GDP	AID INFLOW as % GDP
TRINIDAD-TOBAGO	1960's	510.0000	0.8000000	5.200000	20.00000	8.599999	1.400000
TUNISIA	1960's	173.0000	3.900000	5.299999	9.500000	11.70000	7.099999
TURKEY	1950's	192.0000	23.89999	5.400000	11.80000	1.799999	1.349999
TURKEY	1960's	224.0000	27.50000	4.299999	12.80000	2.599999	0.3000000
UAR	1960's	111.0000	28.79999	6.000000	12.00000	5.599999	4.200000
URUGUAY	1950's	595.0000	2.400000	1.700000	11.60000	2.000000	0.1300000
URUGUAY	1960's	553.0000	2.500000	4.000000	13.00000	2.099999	0.1199999
VENEZUELA	1950's	665.0000	6.099999	7.799999	28.00000	2.299999	0.1600000
VENEZUELA	1960's	753.0000	7.299999	4.500000	24.70000	-3.799999	0.0
ZAMBIA	1960's	155.0000	3.200000	8.200000	32.00000	-5.000000	-4.400000

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
ARGENTINA	1950's	0.6000000	0.0	8.299999	7.799999	0.5000000
ARGENTINA	1960's	0.5300000	0.1700000	9.799999	9.400000	0.3999996
BOLIVIA	1960's	1.599999	-1.599999	17.39999	17.39999	0.0
BRAZIL	1950's	0.9000000	-1.099999	8.299999	8.099999	0.1999998
BRAZIL	1960's	0.8000000	-0.6000000	8.740000	8.400000	0.3400002
BURMA	1950's	0.2000000	-2.500000	20.50000	19.79999	0.7000122
BURMA	1960's	-0.3699999	-0.5700000E-01	16.59999	16.50000	0.9999084E-01
CEYLON	1950's	0.0	-1.900000	31.70000	31.59999	0.1000061
CEYLON	1960's	0.8999997E-01	0.4000000	27.29999	26.89999	0.3999939
CHILE	1950's	0.3000000	0.0	10.70000	9.799999	0.9000006
CHILE	1960's	0.1400000	0.9400000	12.90000	11.90000	1.000000
COLOMBIA	1950's	0.0	-0.2000000	14.90000	14.60000	0.3000002
COLOMBIA	1960's	0.7700000	0.7300000	17.59999	16.89999	0.6999969
COSTA RICA	1950's	4.500000	-1.400000	25.00000	24.39999	0.6000061
COSTA RICA	1960's	6.099999	-1.500000	22.59999	21.50000	1.099991

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
CYPRUS	1960's	1.830000	0.6199999	35.50000	32.70000	2.800003
DOM. REPUBLIC	1950's	0.2500000	-1.900000	23.00000	22.59999	0.4000092
DOM. REPUBLIC	1960's	0.4000000	-0.6000000	20.39999	19.79999	0.6000061
ECUADOR	1950's	0.4000000	-0.5000000	18.79999	18.20000	0.5999908
ECUADOR	1960's	1.099999	-0.4000000	17.50000	17.20000	0.3000031
EL SALVADOR	1950's	0.0	-0.4500000	27.09999	26.59999	0.5000000
EL SALVADOR	1960's	0.9800000	0.6400000	23.79999	22.39999	1.399994
ETHIOPIA	1960's	0.0	-1.299999	10.60000	10.60000	0.0
GHANA	1960's	2.500000	0.6000000	20.70000	20.50000	0.1999969
GREECE	1950's	2.879999	2.580000	9.299999	8.400000	0.8999996
GREECE	1960's	3.799999	3.599999	9.500000	8.400000	1.100000
GUATEMALA	1950's	1.000000	-0.9000000	13.10000	13.10000	0.0
GUATEMALA	1960's	1.799999	-0.8000000	13.90000	13.40000	0.5000000
HONDURAS	1950's	0.5000000	0.9000000	23.09999	22.50000	0.5999908
HONDURAS	1960's	1.299999	-0.6000000	21.00000	20.29999	0.7000122

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
INDIA	1950's	-0.2800000	-0.2000000E-01	5.799999	3.400000	2.400000
INDIA	1960's	0.2000000E-01	0.2000000	4.700000	2.599999	2.100000
INDONESIA	1950's	0.5800000	C.6999999E-01	11.90000	11.50000	0.3999996
INDONESIA	1960's	0.9999996E-01	0.4000000	7.500000	7.400000	0.1000006
IRAN	1950's	0.2000000	0.2000000	20.89999	19.79999	1.100006
IRAN	1960's	1.360000	-0.7200000	12.20000	11.60000	0.6000004
IRAQ	1950's	-4.500000	1.000000	56.39999	56.20000	0.1999969
IRAQ	1960's	0.8500000	0.7000000	33.59999	33.29999	0.3000031
ISRAEL	1950's	1.500000	8.500000	9.400000	4.099999	5.300000
ISRAEL	1960's	5.599999	3.900000	17.79999	6.099999	11.69999
IVORY COAST	1960's	2.200000	-5.500000	31.59999	31.20000	0.3999939
JAPAN	1950's	0.1400000	-0.3500000	11.20000	1.400000	9.800000
JAPAN	1960's	0.6000000E-01	0.1100000	10.30000	1.000000	9.299999
JAMAICA	1960's	1.400000	2.200000	36.09999	33.00000	3.099991
JORDAN	1950's	1.030000	-0.3300000	15.40000	14.50000	0.8999996

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
KENYA	1960's	-3.799999	-5.000000	23.29999	20.89999	2.399994
LIBERIA	1960's	15.00000	0.0	45.59999	45.59999	0.0
MALAYSIA	1960's	1.290000	-3.000000	40.89999	39.59	1.3
MEXICO	1950's	2.099999	-1.000000	14.40000	13.8	0.6
MEXICO	1960's	1.799999	-0.9999996E-01	10.30000	9.69	0.6
MOROCCO	1950's	0.4000000	-1.299999	24.00000	23.39999	0.6000061
MOROCCO	1960's	0.6000000E-01	-3.299999	22.00000	22.0000	0.0
NICARAGUA	1950's	2.099999	-1.400000	22.50000	22.29999	0.2000122
NICARAGUA	1960's	1.599999	-0.5000000	27.59999	27.00000	0.5999908
NIGERIA	1960's	3.040000	1.100000	14.90000	14.50000	0.3999996
PAKISTAN	1950's	0.0	0.4000000	4.700000	4.099999	0.6000004
PAKISTAN	1960's	0.9999996E-01	-0.9999996E-01	6.200000	4.500000	1.700000
PANAMA	1950's	3.099999	2.000000	11.10000	10.90000	0.1999990
PANAMA	1960's	2.900000	0.2100000	34.29999	34.09999	0.1999969
PARAGUAY	1950's	0.3000000	-0.3000000	14.30000	14.30000	0.0

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
PARAGUAY	1960's	0.8400000	0.40C0000E-01	14.10000	14.10000	0.0
PERU	1950's	2.700000	0.6000000	19.09999	18.29999	0.80C0031
PERU	1960's	1.299999	-0.4000000	21.70000	20.20000	1.500000
PHILIPPINES	1950's	3.299999	-1.099999	9.799999	9.500000	0.2999992
PHILIPPINES	1960's	0.7100000	1.599999	15.00000	14.30000	0.7000008
S. KOREA	1950's	0.0	0.9999996E-01	1.799999	1.500000	0.2999992
S. KOREA	1960's	0.8699999	0.8300000	5.599999	4.480000	1.200000
SUDAN	1950's	0.0	-0.4000000	22.89999	22.79999	0.1000061
SUDAN	1960's	0.4000000	0.9000000	22.09999	22.07999	0.2000427E-01
SYRIA	1960's	0.3000000	0.7000000	26.00000	22.79999	3.200012
TAIWAN	1950's	0.6000000E-01	1.610000	9.099999	9.000000	0.9999963E-01
TAIWAN	1960's	1.049999	0.6300000	15.20000	10.30000	4.900001
TANZANIA	1960's	-0.2000000	-1.599999	30.20000	29.59999	0.6000061
THAILAND	1950's	0.9999996E-01	-0.9999996E-01	18.70000	18.39999	0.3000031
THAILAND	1960's	1.299999	-1.000000	17.50000	17.09999	0.4000092

COUNTRY	DECADE	PRIVATE INVESTMENT INFLOW as % GDP	OTHER INFLOW as % GDP	TOTAL EXPORTS as % GDP	PRIMARY EXPORTS as % GDP	OTHER EXPORTS as % GDP
TRINIDAD-TOBAGO	1960's	6.799999	0.4000000	52.09999	50.79999	1.300003
TUNISIA	1960's	4.299999	0.3000000	19.79999	14.90000	4.899988
TURKEY	1950's	0.3000000E-01	0.4200000	8.799999	8.799999	0.0
TURKEY	1960's	2.599999	-0.3000000	7.099999	6.599999	0.5000000
UAR	1960's	-0.5000000	1.900000	19.89999	17.39999	2.500000
URUGUAY	1950's	2.700000	-0.8300000	9.700000	8.000000	1.700000
URUGUAY	1960's	5.500000	-3.999999	12.90000	10.00000	2.900000
VENEZUELA	1950's	3.139999	-1.000000	32.39999	32.09999	0.3000031
VENEZUELA	1960's	-0.2000000	-3.599999	31.39999	31.00000	0.3999939
ZAMBIA	1960's	1.599999	-2.200000	67.20000	66.70000	0.5000000

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P19
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Savings and Growth in less
TITLE
develop countries

DATE LOANED	BORROWER S NAME	DATE RETURNED

DEMCO